STEREO RADIO-TAPE RECORDER
STEREO-RADIO-CASSETTENREKORDER
MAGNETOPHONE A CASSETTES-RADIO
STEREO-KASSETTRADIO

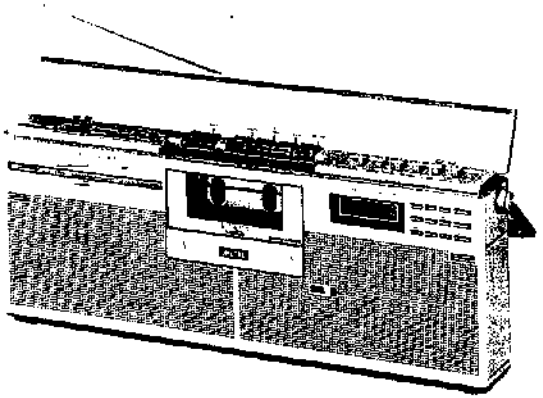
OPERATION MANUAL
BEDIENUNGSANLEITUNG
MODE D'EMPLOI
BRUKSANVISNING

GF-8H/HL

PLL SYNTHESIZER
AUTO TUNING

APSS
Auto Program Search System

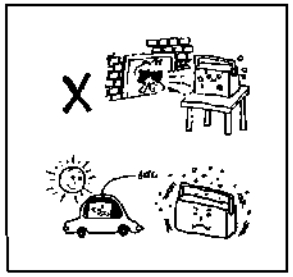
The Searcher



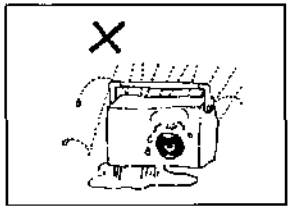
Please read these instructions carefully completely before using the unit. The following instructions explain all of its the unit's features and will make the user fully conversant with operational techniques.

TABLE OF CONTENTS

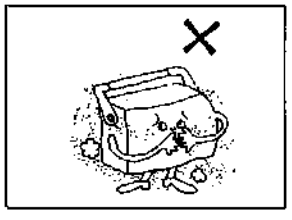
CAUTIONS



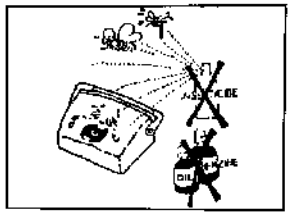
1. Heat damages the cabinet. Therefore do not expose the unit to temperatures above 60°C (140°F). For example, do not place the unit near heaters, radiators, in direct sunlight, or inside a stationary car on a sunny day — temperature can rise above 80°C (176°F). Also do not expose the unit to temperatures below 5°C (41°F).



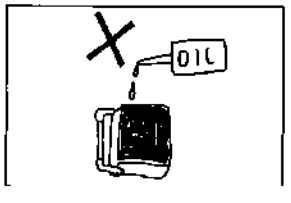
2. Do not expose the unit to moisture. Rain, vapour etc., can damage the circuitry.



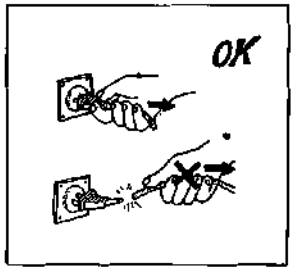
3. Do not expose the unit to dusty environments for any length of time.



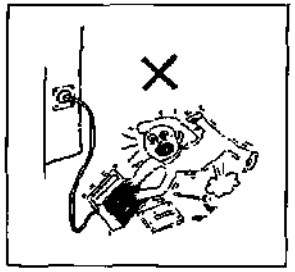
4. Do not apply any organic solvents to the surfaces of the unit — petroleum, benzine, thinners, or insecticides. This can cause cracking or damage to the cabinet's surface.



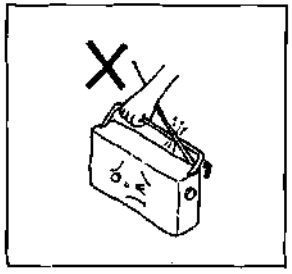
5. Do not oil any part of the unit.



6. Do not pull the AC supply cord in order to disconnect the plug from the supply socket as this can break the connections. Grasp the plug body when disconnecting.

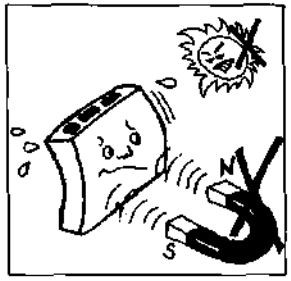


7. Do not remove the cover unless qualified to service the unit; contact with internal components may result in severe shock due to residual charge of capacitors.



8. Collapse the telescopic rod aerial and fit into holder before lifting the unit by its handle. This will prevent the aerial from being bent or damaged.

Cautions for Cassette Storage

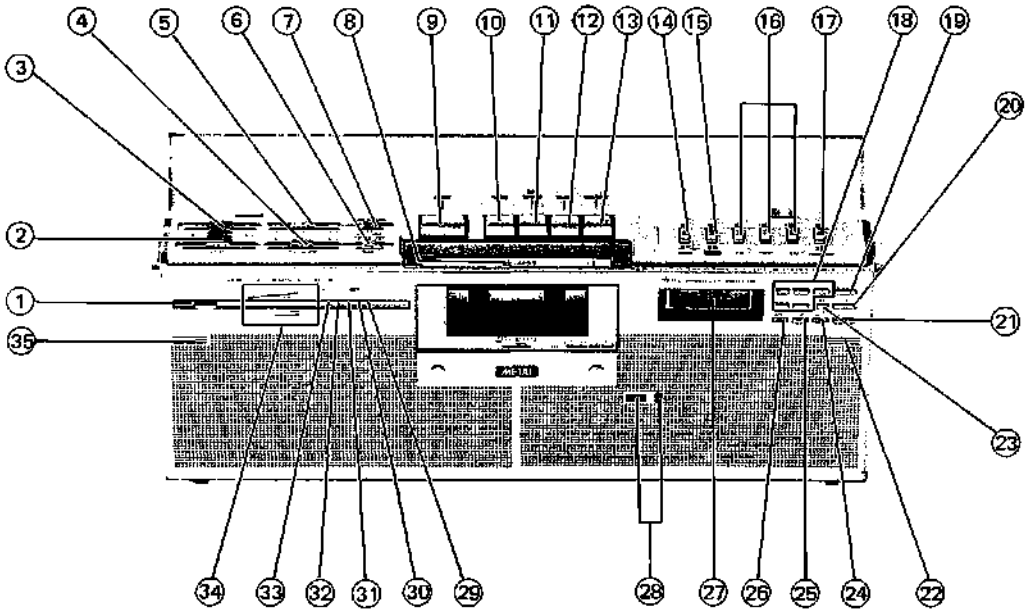


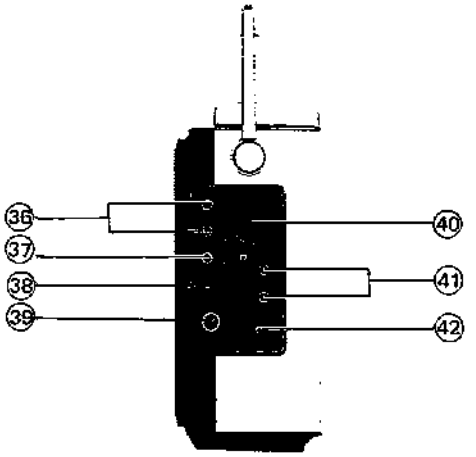
1. Do not store or place the cassettes near strong magnetic fields which radiate from TV sets, speakers, and motors, etc. Exposure to magnetic radiation will affect the recording's sensitivity or even erase it.

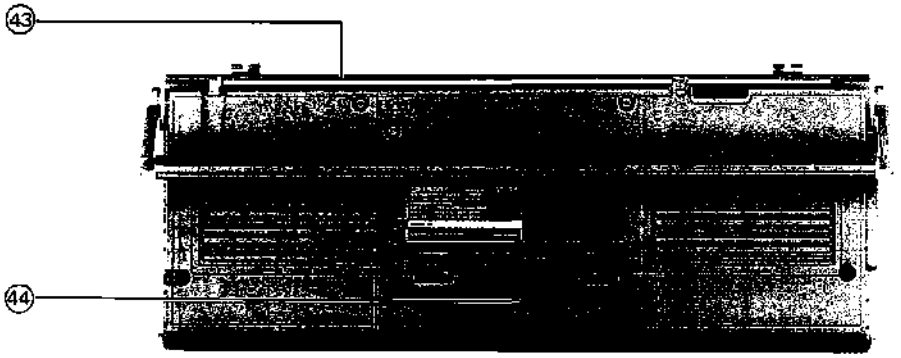
2. Do not store the cassette in hot, humid, or dusty environments.

CONTROLS AND COMPONENTS / REGLER UND BAUTEILE / COMMANDES ET ORGANES / KONTROLLER OCH KOMPONENTER

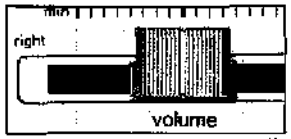
See page 5 to 16. Seihe Seiten 5 bis 16. Voir aux pages 5 à 16. Se sidorna 5 till 16.



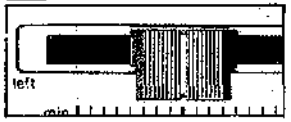




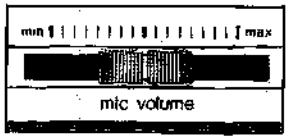
1. **Switch for Battery Check/Dial Illumination**
With the POWER switch ON the display of VU meter activates and indicates the condition of internal battery. Also the panel of FREQUENCY/TIME display illuminates. With the use of the AC adaptor, FREQUENCY/TIME display can be illuminated, and can be read in the dark. For long setting or TIME display illumination, the use of AC adaptor is recommended.



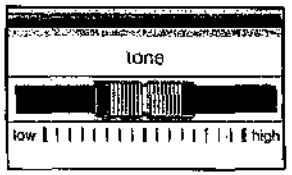
2. **Right Channel Output Control**
This control adjusts the output level of the right channel speaker.



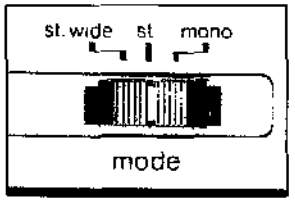
3. **Left Channel Output Control**
This control adjusts the output level of the left channel speaker.



4. **Microphone Input Control**
This control adjusts the microphone input level via the MIX MIC socket. This control functions only when the TAPE PLAYBACK or TAPE RECORDING mode is operative.



5. **Tone Control**
Slide the TONE control towards LOW in order to reduce the treble contents of audio reproduction. The HIGH position produces a flat reproduction characteristic.



6. Stereo Mode Selector

This selector selects the reproduction mode — either MONO, STEREO or ST-WIDE, (an expanded stereo). The characteristic of each mode is as follows;

mono:

Stereophonic signals, (stereo tapes, FM stereo broadcasts etc.) are mixed as one monophonic signal, and the audio sound source is placed between the two speakers.

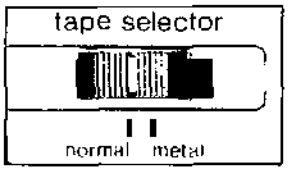
st.:

Stereophonic sound will be reproduced from stereophonic input signals. Monophonic signal input will result in monophonic sound reproduction.

st. wide:

Stereophonic channel separation is increased by means of the unit's matrix circuit.

ST. WIDE mode does not affect monophonic reproduction.

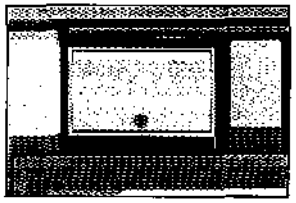


7. Tape Selector

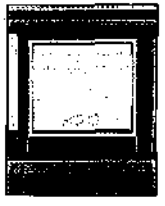
While recording, or playing, select the appropriate tape type switch position: METAL — for Metal tape and NORMAL — for normal tape.

8. Cassette Loading Slot

Insert a cassette tape into this slot with the exposed tape edge downward. When correctly loaded the unit plays automatically.



9. Record Key
Insert the cassette tape into the slot while depressing the RECORD key, recording starts automatically.



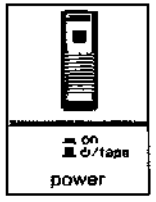
10. Rewind key
Depress the REWIND (◀◀) key in order to wind the tape in the reverse direction. The REW key also performs reverse programme item skipping.

11. Fast Forward Wind Key
Depress the FAST FORWARD (▶▶ | key in order to wind the tape forward at high speed. The F. FWD key performes forward programme item skipping.

12. Pause Key
Depress the PAUSE (II) key in order to interrupt playback or recording. Tape motion will stop when the PAUSE key is engaged and resume when PAUSE key is released, (depressed for the second time.)

13. Stop Eject Key

Operation of the STOP/EJECT (■≙) key during recording, fast forward winding or rewinding, or during APSS functioning will cancel these modes and put unit into the playing mode. Operation of the STOP/EJECT key during play will eject the cassette tape. If the POWER switch is in the ⏻ /TAPE position, (not depressed), the unit will turn itself off when the cassette tape is ejected.

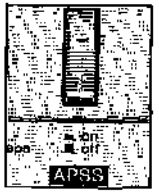


14. Power Switch

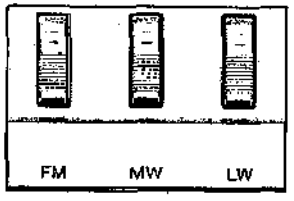
Push the POWER switch to the ON position in order to listen to the radio. For tape playback only, just load the cassette with POWER switch to ⏻ /TAPE position. For recording from the radio, set the POWER switch to ON position and tune in desired programme for recording.

Note:

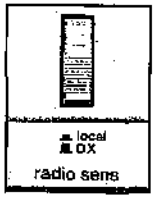
If the cassette tape is loaded, all the circuits are turned on regardless of the POWER switch position (ON or ⏻ /TAPE) and can operate the Tape Deck. If the POWER switch is in the ⏻ /TAPE position then all circuits are turned off when the tape is reached to its end and cassette is automatically ejected.



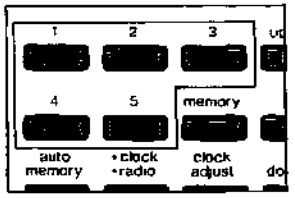
15. APSS Mode ON/OFF switch
When APSS function is required, push this switch to ON and after pushing the POWER switch to ⏻ /TAPE position. Then depress the F. FWD key or REW key. Push this switch OFF in order to resume normal fast forward or rewind operations.



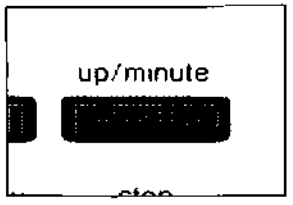
16. Band Selector
FM: Depress this switch for reception of FM stereo or monaural broadcast.
MW: Depress this switch for reception of MW broadcast.
LW: Depress this switch for reception of LW broadcast.



17. Radio Sensitivity Control
This switch functions only when manual or ASPM scanning of FM, MW or LW broadcasts is operating. If control is in the DX position, reception sensitivity and number of receivable stations increase.
If control is in the LOCAL position, reception sensitivity and number of receivable stations decrease.



18. Station Memory Buttons
The desired station frequency is tuned by either employing the ASPM (automatic Station Programme Memory) or by manual button operation. The memory holds a total of 15 stations, 5 stations on FM, MW and LW band).



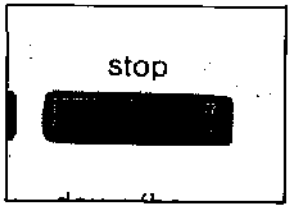
19. Up Station Searching/Minute Digit Advance Switch

a) In order to tune the FM, MW or LW broadcast depress this button switch for 0.5 second or more. The tuning system starts station scanning towards the higher frequencies. Further details, in page 31. When a broadcast station is tuned scanning stops automatically and the scanned station remains tuned for five seconds. After five seconds scanning continues to the upper limit of the band and then commences once again from the lower limit.

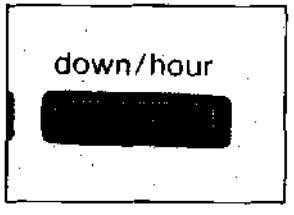
b) After pushing the CLOCK ADJUST (clock adjust) switch, the display shows the time. In order to advance the minute digit of the time display, push this switch and hold 0.5 seconds or more. When the display advances, release hold on the switch.

c) In case the switch is pushed for less than 0.5 sec., both the minutes and the frequency display will advance one digit.
(FM band advances by 0.05 MHz and on MW or LW band by 9kHz. The time display will advance one minute.)

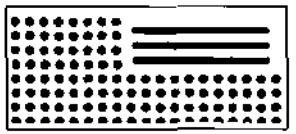
d) Advancing of the time (minutes), or frequency display can be stopped by a push of the Scanning STOP switch.



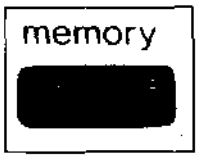
20. **Time Adjustment/ASPM/Station Scanning Stop Switch**
Depress this switch in order to stop the advancing or reverse of the displayed integer.



21. **Down Station Searching/Hour digit Advance Switch**
This switch functions almost the same explanation in paragraph 19.
   a) Station scanning is proceed towards the lower frequencies.
   b) The hour digits of the time display advance (by one digit only.)
   c) If the button is depressed for less than 0.5 of a second the frequency integer display will decrease (MW or LW by 9kHz: and FM by 0.05MHz regresses.)
   d) Advancing of the time (hours), or change of the frequency (down) display can be stopped by pushing the STOP switch.



22. **Right Channel Built-in Microphone**

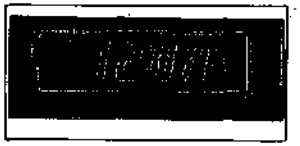


23. **Radio Frequency Memory Button**
This button is used for manually inputting the frequency of a desired broadcast into the microprocessor.

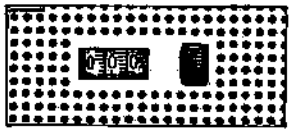
24. **Time Adjusting/Time Setting Button**
This button is used to adjust the built-in clock and to start timing from a adjusted time.

25. **Frequency/Clock Display Selector Button**
This button is a selector switch for the frequency or the time display. One push will change the display; two pushes will change it back to the former display.

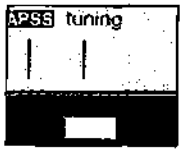
26. **Automatic Station Memory Switch**
The ASPM (Automatic Station Programme Memory) operates when the switch is pushed. (See page 29).



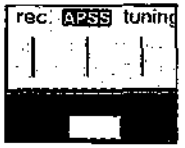
27. Multi-Display Panel
This panel displays the following information;
1) Present time.
2) Broadcast frequency.
3) Pre-set station number (1—5)
4) Functioning of the Automatic Station Programme Memory.



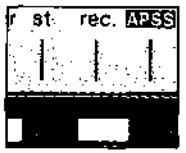
28. Counter and Reset Button
The counter integer increases when tape moves forward and decreases when tape moves in reverse. The Reset is used to zero the counter integer. Counter will provide reference for the tape position, but does not relate to spool revolutions.



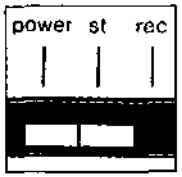
29. Station Tuning Indicator
This indicator illuminates when a broadcast is tuned (FM, MW or LW)



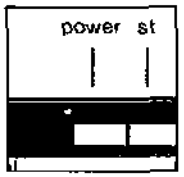
30. APSS Indicator
This indicator illuminates when the APSS is a operation, (serach-ing programme item.)



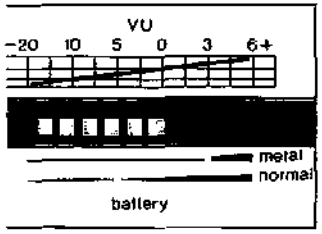
31. Recording Indicator
This indicator illuminates in the recording mode.



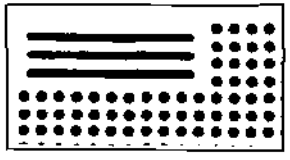
32. FM Stereo Indicator
FM Stereo Indicator (st) illuminates when FM broadcast is stereophonic.



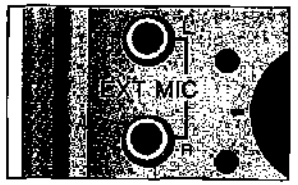
33. Power Indicator
Power Indicator (power) illuminates when the POWER switch is in the ON position or built-in tape deck is operating, (even when the POWER switch is in the ⏻/TAPE position.)



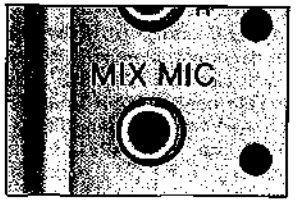
34. VU/Battery Condition Meter
This meter functions as follows;
1. While recording it indicates the maximum input level of either channel.
2. While in the play mode it indicates the maximum output from either channel.
3. While receiving a broadcast in FM Stereo it indicates the maximum input of either channel.
4. All the LED indicators flash when the unit is operating in fast forward, rewind or in APSS mode.
5. When the BATTERY/LIGHT switch is depressed, it indicates battery condition. LED's are fully illuminated if battery condition is satisfactory.



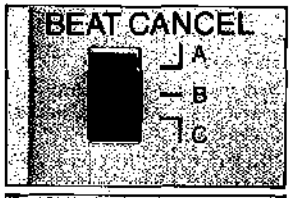
35. Left Channel Built-in Microphone



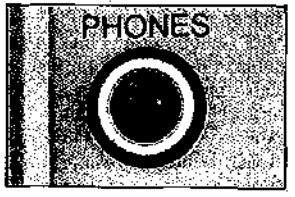
36. External Microphone Sockets
These are for connecting of microphones with an impedance of 400 ohms to 3k ohm, using a 3,5 mm dia. plug: L — left channel socket; R — Right channel socket.



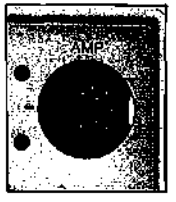
37. Mixing Microphone Socket (MIX MIC)
Fit a jack from a low impedance microphone in the MIX MIC socket in order to record microphone input mixed with input from AMP socket, (record player, other external equipment), or the built-in radio.



38. Beat Cancelling Switch (BEAT CANCEL)
Slide the BEAT CANCEL switch to A, B, or C position with lowest interference level when recording a MW or LW broadcast.

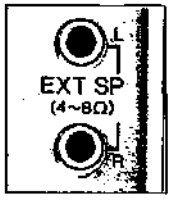


39. Headphones Socket (PHONES)
Fit a jack from stereo headphones of a 8 ohms to 25 ohms impedance into the PHONES socket in order to listen to audio output. The built-in speakers are cut out when the jack is connected.

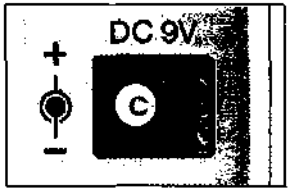


40. DIN Type Input/Ouput Socket (AMP)
Conenct between this socket and same type socket on the external equipment — stereo amplifier, etc. — by using a standard lead fitted with two 5 pin DIN plugs on both ends for recording or reproduction of sources from the external equipments.

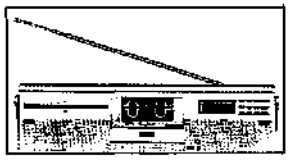
Note:
Avoid connecting with other tape recorders with this socket.



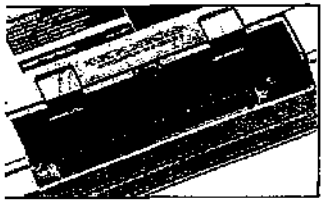
41. External Speaker Sockets
Fit jacks into the EXT SP. sockets (L and R) in order to connect external speakers. The 4 ohms to 8 ohms impedance built-in speakers are cut out when jacks are connected. (L — for left channel output R — for right channel output.)



42. DC 9 Volt Terminal (DC 9V)
Fit the Car Battery Adaptor AD-114N (not supplied) or AC Adaptor EP-8H (or HX) into the DC 9V terminal socket in order to power the unit from a motor vehicle battery or an AC supply. Connection of Adaptor AD-114N or EP-8H (or HX) to DC 9V Terminal Socket cuts out the unit's internal battery. Refer to pages 23 and 24.



43. Telescopic Aerial
Raise and extend the telescopic rod in order to receive FM stereo broadcasts.



44. Battery Compartment
Fit 6 batteries, each 1.5 Volt, type UM/SUM-1; R 20; HP2; or D. Fit 2 batteries for microprocessor, type UM/SUM-3, R 6; HP 7; or AA. Check the batteries' polarities carefully when fitting.

BATTERY INSTALLATION

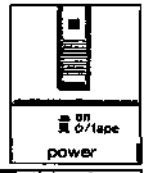
This unit is designed to operate with two DC power sources from two kinds of batteries; one powers the Microprocessor, and the main batteries power the rest of the functions and circuits, (radio and audio amp. etc.) The internal battery power can be changed to external DC power for the main power supply. But the DC power source for the Microprocessor must be maintained regardless of the main DC power source — internal or external.

Cautions:
Remove exhausted batteries immediately. Do not leave exhausted batteries in the compartment! Also remove all batteries from unit when the storing unit, or anticipating a long period of disuse. Keep battery contacts clean.

MICROPROCESSOR BATTERIES INSTALLATION

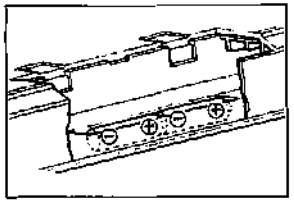
Note:
Install Microprocessor batteries before installing the main batteries. If this order is reversed, the Microprocessor not function correctly.

1. Disconnect A.C. Adaptor Plug from the DC Input Socket.



2. Turn the POWER switch to ⏻/TAPE position and unload the cassette.

3. Remove battery compartment cover.

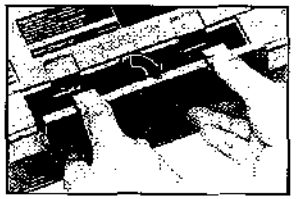


4. Fit two batteries into the Microprocessor Battery Compartment. Use the UM/SUM-3; R 6; HP 7; AA; or equivalent. Observe the polarities of the batteries when fitting into the battery compartment. If the polarities are reversed during installation, the Microprocessor may be damaged. Be careful when fitting batteries to ensure that all battery terminals, and battery terminal contacts are perfectly clean. Dust between contacts will cause malfunction.

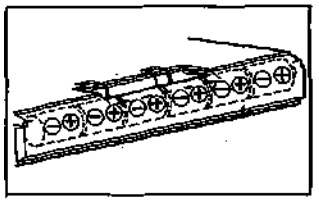
5. If Microprocessor does not function normally, (or does not function) remove batteries and carefully reinsert after 20 seconds.

Note:
If the unit is placed near any magnetic fields, motors etc., or when static electricity has built up, the Microprocessor may not function normally. Correct by removing batteries and reinserting after a period of 20 seconds.

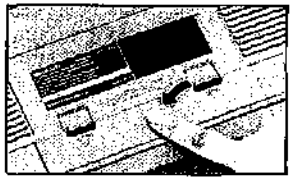
INSTALLATION OF MAIN BATTERIES



1. Remove battery compartment cover.
2. Check for installation of Microprocessor batteries. Install if not already in place. Refer to page 18.



3. Fit six batteries into the main Battery Compartment. Use the UM/SUM-1; R-20; HP-2; or D type batteries. Check that battery polarities are arranged correctly. All batteries are fitted in series.

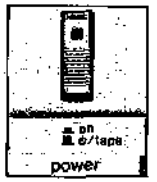


4. Replace Battery Compartment Cover. Unit is ready for operation on internal battery power supply.

REPLACING MICROPROCESSOR BATTERIES

Replace batteries when fading or absence of Display integers occurs.

Note:
Do not mix new batteries with exhausted ones. Replacement with completely new batteries.



1. Disconnect AC Adaptor Plug from DC Input (DC 9V) socket.
2. Turn the POWER switch to ⏻/TAPE position and unload the cassette.

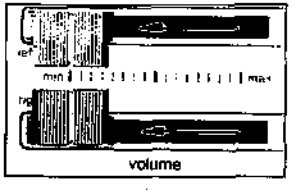
3. Remove main batteries — if installed.
4. Remove exhausted Microprocessor batteries.
5. Install new batteries into Microprocessor Battery Compartment. Refer to the instructions on page 17.
6. Clock time and Radio Pre-setting are cleared and may require resetting.

MAIN BATTERY CONDITION CHECK AND REPLACEMENT

The battery check serves as an indication of the effective battery life. Batteries should be replaced according to the voltage level reading on the VU/BATTERY condition Meter.

Note:
Do not mix new batteries with exhausted ones. Replace with completely new batteries.
The VU/BATTERY Condition Meter displays the battery voltage level.

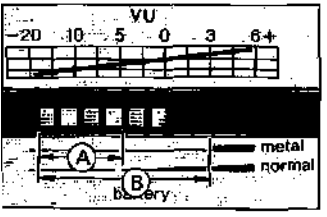
1. Disconnect the AC adaptor plug, (if connected), from the DC 9V Terminal point.
2. Turn the POWER switch to ON.



3. Slide both VOLUME L and R controls to the MIN position.

4. The VU/BATTERY Condition Meter displays differing battery voltage levels according to the unit's operational mode.
   Set the operation mode (playback or recording mode).

5. Set the TAPE SELECTOR position according to the Type of tape used (normal or metal). The voltage level varies according to the tape selector setting position.
6. Push the BATTERY/LIGHT switch and hold in position.



7. Depending on the mode of operation, and type of tape used the battery voltage is sufficient and is indicated when the LEDs flash as illustrated. If too few LEDs flash, then the battery voltage is insufficient. Replace with new batteries.
   A ... 1) for recording and playback with normal tapes.
   2) for metal tape playback.
   B ... for metal tape recording.

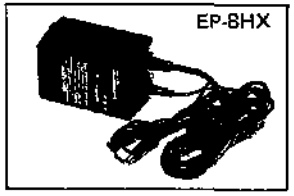
Notes:
The battery voltage level may decrease after using the Unit GF-8H/HL for long periods of time.
In the case of battery voltage level being adequate after increasing volume level, the POWER indicator may flash. This does not indicate exhausted batteries.
Replace batteries as soon as VU/BATTERY Condition Meter provides warning of exhausted batteries.

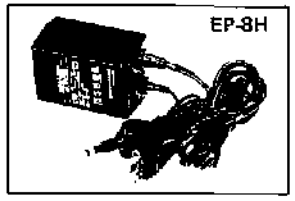
CONNECTION TO AC POWER SUPPLY

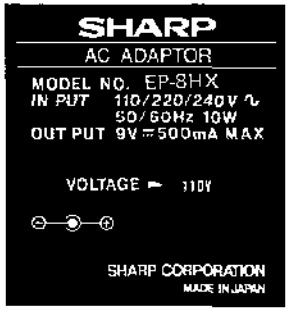
AC adaptor is available for operating the unit on AC power.
It is advisable to use AC power for long periods of recording. Operate the Unit with the AC Power supply in order to conserve battery power, or when main batteries are not fitted.
Model GF-8H and Model GF-8HL include either one of the following AC adaptors.

EP-8HX (Part Number: RADPA 7060 AFZZ)
... AC 110/220/240V switchable, 50/60Hz universal type)

EP-8H (Part Number: RADPA 7054 AFZZ)
... AC 220V only, 50/60Hz



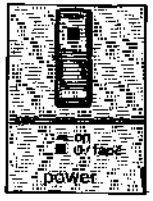




VOLTAGE SELECTOR ADJUSTMENT

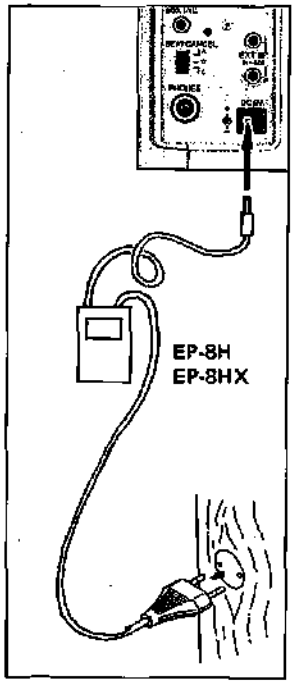
Adjustment is necessary only for using Model EP-8HX Unit.
Setting of the Voltage Selector should be checked to see that it matches with the local AC supply voltage. This must be done before plugging in to the AC supply. Adjustment is made by turning the adjusting screw in either direction, with a minus headed screwdriver, until reading of Selector matches the local AC supply voltage.

HOW TO USE THE AC ADAPTOR



1. Check for installation of Microprocessor batteries. Install if not already in place. Refer to page 18.

2. Turn the POWER switch to ⏻/TAPE.

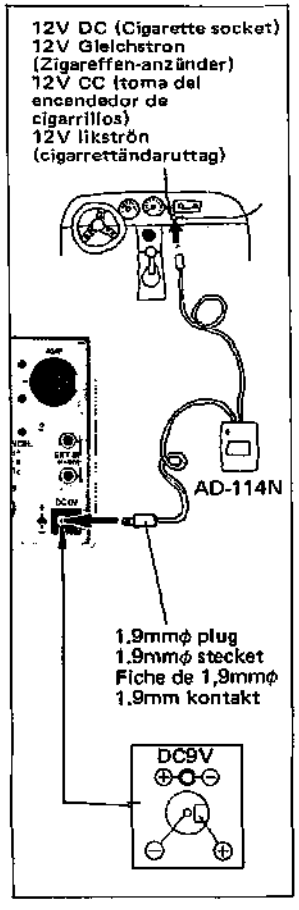


3. Fit the output lead connector of AC Adaptor into the DC 9V terminal on the side of the GF-8H/HL Unit.
   The fitting of the connector into the DC 9V Terminal cuts out internal batteries, (if fitted).

4. Connect the AC Supply Connector of AC adaptor into an AC Supply Socket.

5. Disconnect AC Supply Plug from socket when not using unit for long periods, or when operating the unit on its internal batteries, (if fitted).

CONNECTION TO 12 VOLT VEHICLE BATTERY



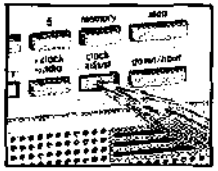
The Unit can be operated on a 12 Volt vehicle battery with the use of the Adaptor AD-114N, (not supplied).

1. Check for installation of Microprocessor batteries. Install if not already in place. Refer to page 18.
2. Fit the Adaptor (AD-114N) connector into the DC 9V Terminal point on the Unit.
3. Fit the other end of the Adaptor (with plug fitted) into the vehicle's 12 Volt, DC, cigarette lighter socket on the dashboard.

Note:
Connection of Adaptor to the DC 9V Terminal point will cut out the internal batteries.

THE BUILT-IN CLOCK/

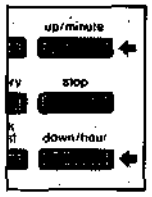
This unit is equipped with a quartz crystal clock. The hour reading on this clock is set by 24 Hours integer display.



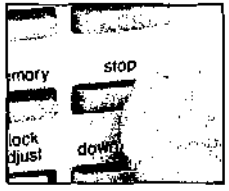
ADJUSTING THE CLOCK

1. Push the CLOCK ADJUST button with the tip of a pencil or another pointed object. A time reading will appear on the display panel and the time display will flash.

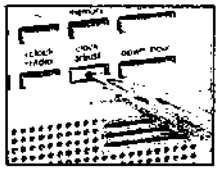
2. Verify correct present time from another clock, telephone time announcement, or radio time signal.



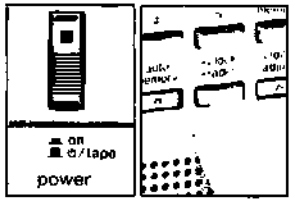
3. In order to set the correct time, push the UP/MINUTE or DOWN/HOUR switch. There are two methods of advancing the time reading: One for an automatic continuous advancing and the other for a one digit advancing. Refer to the instructions on pages 10 and 11.
   Push the button for more than 0.5 sec. to automatically advance the time reading. As the time display starts advancing release the button. Pushing the button for less than 0.5 sec. will advance the hour or the minute reading by one digit.



4. Set the time reading one or two minutes in advance of the present time, push the STOP switch and wait for the 'on the minute' time signal from a radio, etc.



5. Push the CLOCK ADJUST switch at the instant the radio time signal indicates the 'on the minute' or another clock shows the "00" seconds reading.
   The clock starts immediately and the display stops flashing.



TIME INDICATION

1. Present time is displayed when the POWER switch is ⏻/TAPE position.
2. When the POWER switch is pushed to the ON position, the display will show the tuned frequency of the radio, during LW, MW or FM button of the Band selector is depressed. In this condition, (when the frequency is displayed,) the time can be displayed by pushing the CLOCK/RADIO switch.
   When the frequency display is required push the CLOCK/RADIO switch again.
   For reading the TIME in the dark, use AC adaptor and set the POWER switch to ⏻/TAPE position for back-light illumination. The Unit is designed to turn off the illumination by deplugging the AC adaptor to avoid battery consumption.

RADIO OPERATION

GENERAL INFORMATION

In order to tune a desired station, follow one of the two methods below:

1. Pre-set the memory and recall the desired station. Refer to the instruction for using the ASPM (page 28) or Using the UP and DOWN switches. (page 30)

2. In order to tune a desired station by manually scanning, refer to the instruction for Tuning without Pre-set Memory. Page 35.

PRESET MEMORY TUNING/

In order to memorize a station frequency, follow one of the two methods below:

1. In order to memorize a station frequency automatically by using the ASPM (Automatic Station Programme Memory), refer to the instructions on pages 28 to 30.
2. In order to memorize the tuned station frequency by using the UP/MINUTE and DOWN/HOUR switches, refer to the instructions on pages 30 to 32.
3. The memorized information in the Microprocessor will not be cleared unless the Microprocessor batteries are removed. (Turning the POWER switch to ⏻/TAPE or even the removing the main batteries will not clear the microprocessor.)

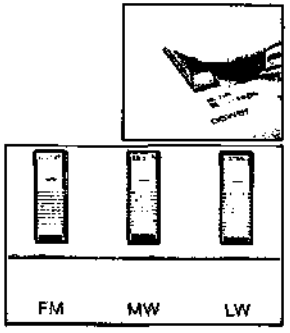
Notes:

1. The ASPM has priority, and therefore care must be taken: even if buttons have inputted the station frequency into the memory, the new input to the ASPM memory will clear the existing memorized information. The most recent station frequencies selected will enter the memory.
2. After specific information is memorized, you can change the memorized informations by using the optional number button. Refer to the instructions on page 32 for changing procedures.

TO INPUT INTO MEMORY BY USING ASPM

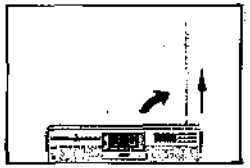
The ASPM is a useful device which can memorize five station frequencies on MW, LW or FM bands, by automatically searching the MW, LW or FM bands from the lower limit upward.
This model is equipped with a Microprocessor which permits the operation of the ASPM (Automatic Station Programme Memory). The ASPM can scan or search for a maximum of 15 stations, (5 stations on each wave band). The ASPM memory procedure is as follows. In order to recall the memorized stations, refer to the explanations on page 32.

Note:
When the ASPM system is employed, the previously memorized station frequencies will be automatically cleared.



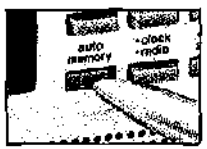
1. Depress the POWER switch to ON.

2. Depress MW, LW or FM button of the Band Selector.
   LW: for long wave broadcasts.
   MW: for medium wave broadcasts.
   FM: for FM stereo or mono broadcasts. Automatic Switching circuit selects the reception of FM stereo or mono broadcasts.

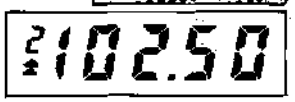


3. Raise and extend the telescopic aerial for FM reception.

4. Adjsut the reception sensitivity with the RADIO SENS switch.
   1) When the switch is set to the DX position, sensitivity and number of receivable stations increase.
   2) When the switch is set to the LOCAL position, sensitivity decreases, and the number of receivable stations decreases. This causes automatic reception to pass over the remote and weak stations.



5. Push the AUTO MEMORY switch.
   The scanning will continue even after releasing the switch.



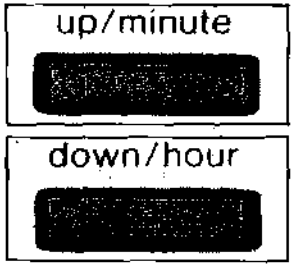
6. The unit starts automatic scanning of the selected band from the lower limit upwards, (station searching.) An integer will appear in the corner of the display panel. Refer diagram.
   This integer increases as additional stations are memorized, until a total of five, (1-2-3-4-5) are scanned. At the same time, the '▲' indication will flash to show that the tuning and memory are in operation.

7. When the above integer reaches 5 the scanning stops, or when all receivable stations are memorized, which may be less than five. In such cases, the lower frequency limit of the waveband is entered by using the buttons. The number of memorized stations will be displayed.
8. Where station crowding occurs, the scanning and memorization are terminated at the lower end of the frequency band. Therefore if higher frequency stations are desired to be entered into the memory then set the RADIO SENS switch to the LOCAL position and repeat the scanning with the ASPM. This operation can be repeated several times until the desired five stations to be memorized are spread out over the waveband range.
9. If all the above attempts result in failure, then enter the desired station frequencies, from 1 to 5, manually into the memory as follows:

TO INPUT A MEMORY BY USING UP/MINUTE AND DOWN/HOUR SWITCHES

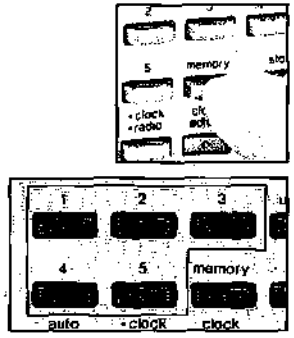
Any selected station frequency can be entered into the memory with any of the buttons (1 to 5). This manually operated memory setting cancels out previously entered stations which were selected by the ASPM.

1. Proceed with operations of step 1 to 4 of the instructions on pages 28 and 29.

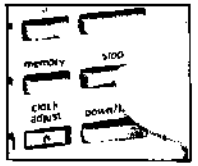


2. In order to search for a higher frequency station other than presently displayed station, refer to the instructions for UP/MINUTE switch, on page 10. In order to search for a lower frequency station, push DOWN/HOUR switch and then release or hold.
   Refer to the instruction for using DOWN/HOUR switch, on page 11.

3. If a station is tuned during the scanning operation, the scanning automatically stops for 5 seconds and the programme is heard through the speakers.
   Complete the following operation within 5 seconds. If more than 5 seconds elapse without starting the operation, the scanning will resume.



   1) If the station is to be memorized, push the MEMORY switch and push any of the number buttons during the 5 seconds period. If the number input needs to be corrected, push the MEMORY switch again and then push correct number buttons (1 to 5).
      If this operation is difficult to complete within 5 seconds, then push the STOP switch and suspend the scanning procedure of the pre-set memory operation.



2) If you want to listen to this station, push the STOP switch. To restart the scanning push UP/MINUTE or DOWN/HOUR switch again.

4. When scanning reaches its upper or lower frequency limit, scanning sequence will repeat automatically.

CHANGING MEMORIZED STATIONS

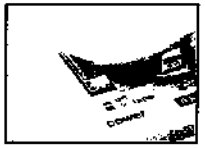
The pre-set station frequencies that have been memorized by utilizing ASPM or UP/DOWN switches, using any or all buttons, can be changed.

In case the memorized stations need changing:

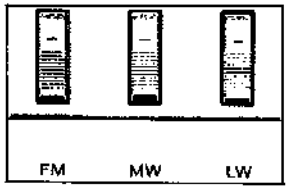
1. Proceed with Step 1 to 3 above, until the deisred stations are tuned in.
2. Push the MEMORY switch and desired number button.

TO RECALL THE MEMORIZED STATION

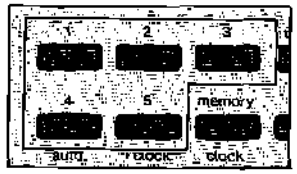
When the pre-set station memorization is complete, the desired station can be recalled with the following procedures.



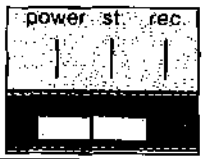
1. Push the POWER switch to ON.



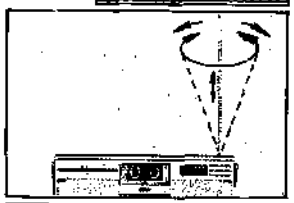
2. Push LW, MW or FM button of Band selector, as required.



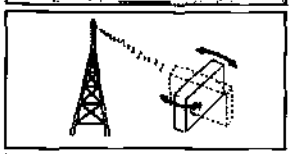
3. Push the number buttons (1 to 5) which were used to enter the required station into the memory.



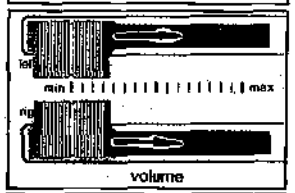
4. FM Stereo indicator illuminates if a stereo broadcast is received on regardless of the stereo MODE selector position.



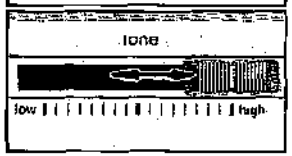
5. Adjust the telescopic aerial lengths and axis, until the best FM (mono or stereo) reception is obtained.



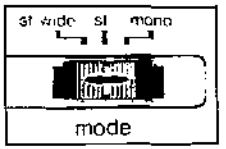
6. Or orientate the Unit (with its internal directional) for peak gain of MW or LW broadcasts.



7. Slide the VOLUME controls to a position which produces a suitable acoustic effect with a balanced output from the left and right channel speakers.



8. Slide the TONE control in order to adjust the tone quality of the audio reproduction from both speakers; high – Set to this position usually: low – Reduces treble contents.



9. Slide the MODE selector to the corresponding position referring to the following instructions. FM stereo to FM mono braodcasts can be received if MODE selector is set at STEREO or ST. WIDE position. (selection is automatic)
   If noise impairs reception of distant FM stereo broadcasts, slide the MODE selector to MONO position to reduce noise.

Note:

mono:
Stereophonic signals (FM stereo broadcasts) are mixed into one monophonic signal, and the sound will appear to come from a position between the two speakers Since MW and LW broadcasts are monaural, output is monaural also.

stereo:
Stereophonic sound will be reproduced from all stereophonic input signals. Monophonic signals will result in monophonic sound reproduction.

st. wide:
Stereophonic channel separation is increased through a matrix circuit in the unit, (wide stereo range).
Setting the MODE selector to the ST. WIDE position will not result in broader sound reproduction of monophonic signals.

10. To turn off the unit turn the POWER switch to ⏻/TAPE position. The unit stays operating as long as the cassette is loaded even if the POWER is set to ⏻/TAPE position.

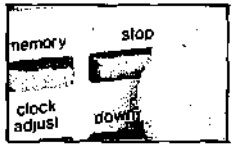
LAST TUNED STATION MEMORY

The memory will recall the last preset station listened to, even after a different mode has been selected. The most recently listened to station can be received again after.

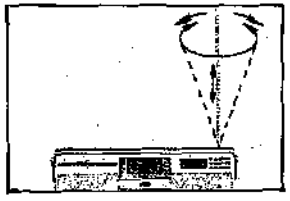
1. FUNCTION selector has been changed to another position and then returned to its original position.
2. POWER switch is turned off then on again.

TUNING WITHOUT PRE-SET MEMORY /

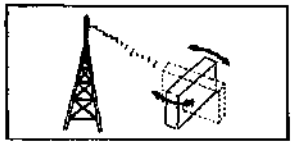
1. Operate steps 1 to 3 of instructions to Input a Memory by using the UP/MINUTE and DOWN/HOUR switches and scanning will starts. Refer to page 30 and 31.



2. After a station is tuned, it is held for five seconds. If this station is desired, push the STOP switch and the station will remain tuned.
3. If the STOP switch is not pushed within five seconds, the scanning resumes and tunes the next station.
4. The scanning continues until the lower or higher limit of the waveband is reached then the same scanning sequence is repeated.



5. Adjust the telescopic aerial length and axis, until the best FM (mono or stereo) reception is obtained.



6. Or, orientate the Unit (with its internal directional aerial) for peak gain of MW or LW broadcasts.

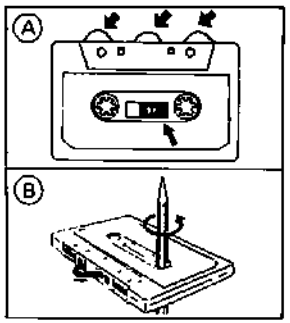
7. Adjust VOLUME, TONE controls and MODE selector to your taste.

CASSETTE TAPE RECORDER OPERATION

CASSETTES

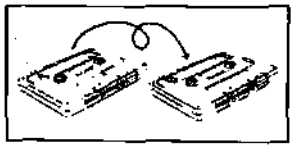
Cassette Tape Selection

1. The quality and condition of cassette tapes used will have a direct effect on the quality of the sound produced by this unit. Low quality tapes are prone to break and stretch which in turn can lead to jamming of the mechanism or wavering of pitch, (wow and flutter,) in the reproduced sound. Use only well known brands of tape.
2. Use of C-120, (120 minutes play using both sides), cassettes are not recommended.



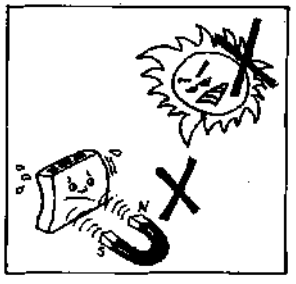
Notes: (before loading a cassette)

1. Inspect the Cassette for loosely wound tape.
   The spools can be viewed through the window in the centre of the cassette; refer to figure A. Loosely wound tape can be tightened by winding the spool with a pencil or similar object inserted into the spindle hole; refer to figure B.



2. Cassette has two sides (1 or 2; A or B).
   When you have recorded or played one complete side, (side A facing outward,) the other side can be used by turning the other the cassette around, (side B facing outward.)

Cautions for Cassette Storing



1. Do not store or place the Cassette in strong magnetic fields such as those radiating from TV sets, loudspeakers, motors, etc.
   Exposure to magnetic radiation will reduce the recorded output or even erase the recording.

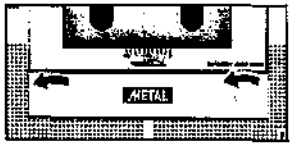
2. Do not store the Cassette in hot, moist, or dusty environments.

TAPE HEAD CLEANING

Important Notes

After a period of time, especially when inexpensive brands of tape have been used, playback sound may become muffled or, in extreme cases, almost inaudible. This is not a fault in the recorder, but is due to a deposit of oxide and other contamination on the tape heads.
In order to remedy this problem, follow one of the methods below.

1. **Quick Method**
   The easiest way of overcoming this problem is to use a head cleaning cassette of well known brand.
   Insert a head clenaing cassette into the compartment and run for 5 to 10 seconds. Over-use may cause wear of the tape heads. A Head cleaning cassette is not supplied.



2. **Manual Cleaning Method**
   Tape heads may also be cleaned manually.
   1) Press the STOP/EJECT key to unload the cassette, (if loaded).
   2) Remove the metalic plate cover, (located on the front panel,) by unscrewing two protruding screws.
   3) Clean heads with a soft cloth moistened in methylated spirits.
   4) Replace metal cover and screws.
   5) Wait 2 or 3 minutes from the time of cleaning before inserting a tape into compartment.

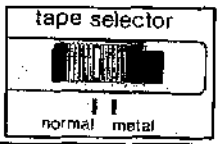
Caution
1. Do not attempt to clean the heads with a hard instrument. Scraping the heads with a hard instrument will cause serious damage.
2. Do not use any organic solvents for cleaning the Heads — benzine, thinners, etc.

PINCH ROLLER CLEANING

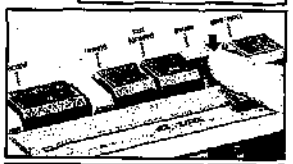
The Pinch Roller need periodic cleaning. An accumulation of dust on the drive components can cause wow and flutter, (irregular tape speed). Clean pinch roller with a soft cloth moistened with methylated spirit.

RECORDING WITH BUILT-IN RADIO

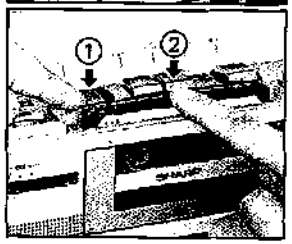
1. Prepare the Unit for radio reception. Refer appropriate section of Radio Operation, pages 26 to 36.
2. Check the battery condition by referring to the instructions on page 20.
   For recordings that last a long time, make sure that the battery voltage does not drop by the use of AC adaptor and AC supply.



3. Slide TAPE SELECTOR switch to the NORMAL or METAL position, according to the type of tape used.



4. Depress the PAUSE (II) key.

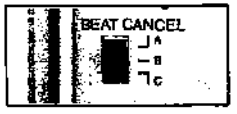


5. Depress the RECORD (●) key, and load a Cassette while depressing the RECORD key.
   Load a Cassette into the Compartment with the side to be recorded (or played), A or B (1 or 2) side, facing outward. Also place the Cassette in the Compartment with the strip of exposed tape facing downward. Before recording check that the tape is wound onto the left hand spool. If the tape is wound onto the right hand spool then either reverse the side of Cassette in Compartment, turn A side over to B side, or vise versa; or rewind the tape, refer to page 60.

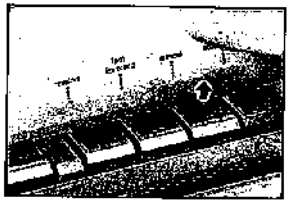
Note:
Cassettes with erasure protection tabs removed can be used, although they are liable to be accidentally erased.

6. Normally Cassette Tapes are provided with a leader tape at both ends. Therefore with a completely wound tape, the recording should not be started immediately. Allow the lead to run for about 5 seconds. After making about 5 seconds programme gap on the tape the recording can be started.

7. Level of input signal strength used for recording is automatically controlled with the ALC circuit. The VU Indicator will show the level of input signal.

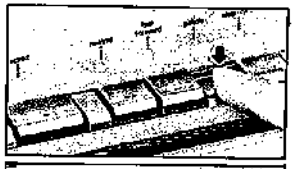


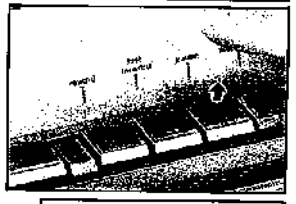
8. Slide BEAT CANCEL switch to A, B or C position in order to cancel the maximum beat interference when tuned to MW or LW broadcasts.



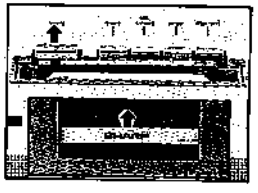
9. Press to release the PAUSE (II) key at moment recording is to start.

10. Adjustment of the VOLUME and TONE controls and MODE selector will not alter the recording level. Refer to pages 33 and 34.

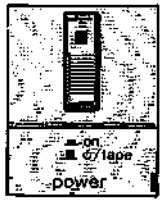




11. Depress the PAUSE (II) key in order to interrupt the recording. Tape motion will stop when the PAUSE (II) key is engaged and resume from the point of stopping when the PAUSE (II) key is released, (depress for the second time.)



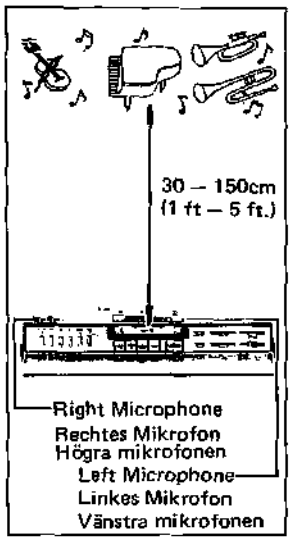
12. Immediately after the end of the tape is reached, the Cassette will be ejected and RECORD key disengaged.



13. Push the POWER switch to the ⏻/TAPE position in order to turn off all circuits of the unit.

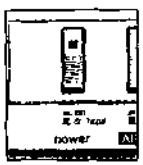
RECORDING WITH BUILT-IN MICROPHONES /

1. Disconnect the jacks from EXT MIC, MIX MIC, and LINE IN sockets, (if connected.)



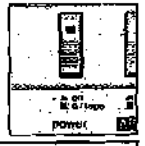
2. Place the Unit approximately 30cm. (1 ft.) to 150cm (5 ft.) from the sound source; (or bring the sound source to the Unit.) The Unit will record sounds from greater distances with a satisfactory recording quality. Face the front panel of the Unit *toward* the *sound* source.

   Note:
   Left and right channel micro*phone inputs are reversed during* playback. When the Cassette Tape recorded from the Unit's microphones are played the sound sources recorded in the right and left channels are reversed. The right channel sound source is heard from the left channel speaker; the left channel sound source is heard from the right channel speaker.

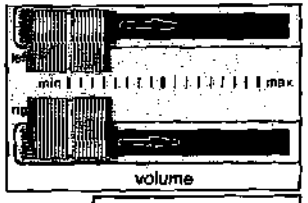


3. Turn the POWER switch to ⏻/ TAPE position.

4. Perform steps 2 to 7 and step 9 of Recording with Built-in Radio mentioned on pages 39 to 41.
5. Monitoring of recording with headphones or with the Unit's speakers is not possible.



1. Turn the POWER switch to ⏻/TAPE position.



2. Slide the VOLUME control slightly to increase the sound level.

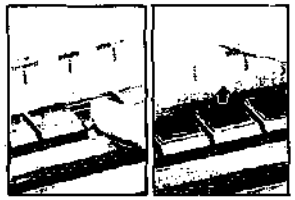
3. Slide the TAPE SELECTOR switch to the appropriate NORMAL or METAL positions, according to the tape type used.

4. Insert the recorded Cassette into the Cassette Compartment. Playing will start when Cassette is completely inserted.
   Load a Cassette into the Compartment with the side to be played, A or B (1 or 2) side, facing outward. Also place the Cassette in the Compartment with the strip of exposed tape facing downward.

5. Adjust the VOLUME, TONE controls and MODE switch to your taste. Refer to the instructions on pages 33 and 34.

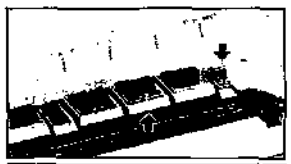
6. To advance or rewind the tape rapidly follow instructions for REWIND, FAST-FORWARD WIND or APSS. (page 45 to 51).

7. For private listening fit the stereo headphone jack into the PHONES socket. Refer to Headphones, page 55.



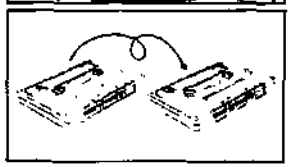
8. Depress the PAUSE (II) key in order to interrupt the playback. Tape motion will stop when the PAUSE (II) key is engaged and resume from the point of stopping when PAUSE (II) key is released, (depressed for the second time.)

9. With the POWER switch to ⏻ /TAPE position, the unit can be turned off the moment the Cassette is ejected at the end of tape.
Refer to the instructions for SLEEP SYSTEM on page 54.



10. Depress the STOP/EJECT (■≜) key fully in order to stop the play and the Cassette is ejected.

11. When the Cassette Tape reaches the end, the play operation will automatically stop and the Cassette will be ejected.



12. Both sides of the Cassette Tape can be played. When the Cassette Tape reaches the end, the reverse side of the Cassette Tape is ready for play.

APSS
(Auto Programme Serach System)

Introduction

SHARP has solved one of the main drawbacks of cassette decks. This concerned the finding of the beginning of a programme item. To eliminate the need for trial and error, and delay, the APSS was developed. The APSS automatically scans tape for the next space (non-signal) in the recorded material and starts playing at the beginning of a recorded item, (following the space.) The APSS operation will not function, when the deck is in the recording, fast forward or rewind mode.

* Forward APSS finds the beginning of the next item.
* Reverse APSS finds the beginning of the item to be listened to.

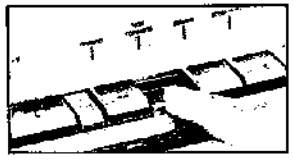
Preparing Tapes for APSS Operation

In order for the SHARP APSS to operate correctly, there should be at least a 3 second interval, between each programme item on the tape. Most commercially pre-recorded tapes available are suited for use on this tape scanning system. To edit an interval (non-signal) on other tapes, follow the APSS editing instructions, given on page 51.

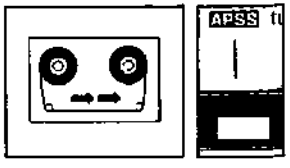
Forward APSS Operation
Follow these instructions to find the next programme item on the tape. Refer to the notes on page 48.

1. Push APSS switch to ON.

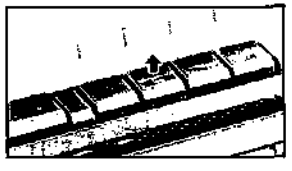
2. Insert and depress the cassette into the compartment (if not already loaded). Play will start.



3. Depress the FAST FORWARD (▶▶) key.

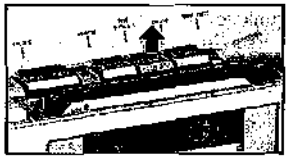


4. APSS sensor scans the tape at high speed and the APSS indicator illuminates.



5. When the space between items is reached, the FAST FORWARD key (▶▶) will disengage and the selected programme item begins to play automatically.

6. To advance the tape to the second programme onward, depress the FAST FORWARD (▶▶) after the same key is disengaged. Any programme onward can be searched by repeating the same action.

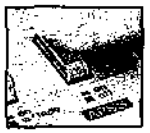


7. Depress STOP/EJECT (■⏏) key in order to interrupt APSS operation before the gap is reached. Recorder will return to the playing mode.

Reverse APSS Operation

The following instructions are for searching for the beginning of a programme item.

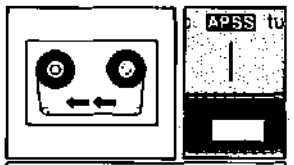
Refer to the notes on page 48.



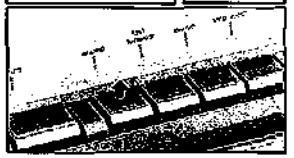
1. Push APSS switch to ON.

2. Insert and depress the cassette into the compartment, (if not loaded), and play will start.

3. Depress the REWIND (◀◀) key.



4. The APSS sensor scans the tape at high speed and the APSS indicator illuminats.



5. When the tape reaches the space between items, the REWIND (◀◀) key will disengage and play of the item starts automatically.

6. To return the tape to the second programme backward, depress the REWIND (◀◀) key once again after the same key is disengaged. Any programme backward can be searched by repeating the same action.

7. Depress STOP/EJECT (■≜) key *in order to interrupt* APSS operation before the gap is reached. Recorder will return to the playing mode.

A Few Notes on APSS Operation

1. If the APSS function is not activated until near the end of the item playing, the APSS sensor may pass over the next space on the tape, (and programme item), and go on to the next but one item before automatically stopping for play.

2. Depress PAUSE (II) key before beginning APSS operation if you would like the tape to stop at the space before the item. Depress (to release) PAUSE (II) key to restart.

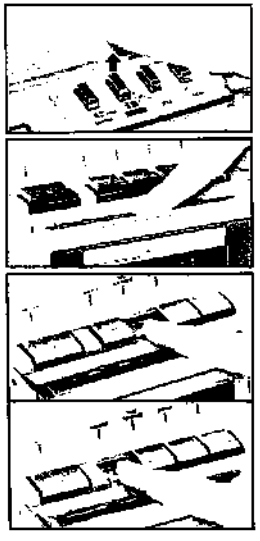
3. APSS mechanism will not operate properly with the following types of tape recording.
   * Tape with intermittently recorded sound, (lectures, conversations, etc.).
   * Tape wth pianissimo passages, (classical music, solo performances, modern jazz, etc.).

* Tape recorded at low levels, (less than −20dB throughout).
* Tape with edited spaces, (non-signal), of less than 3 seconds between programme items.
* Tape with excessive hum or noise between items.

On such tapes, APSS mechanism may either miss the space or start playing in the middle of a recorded selection.

FAST FORWARD WINDING AND REWINDING (WITHOUT APSS)

This is a method of searching for a position on the tape without using APSS. However, this key is mainly used to wind the tape to its end, or to advance the tape to a desired programme with the help of the tape counter (See page 53), for advancing the tape to an approximate position before searching for the cue of a programme by use of APSS.



1. Depress and set the APSS switch to OFF (if it is in the ON position).

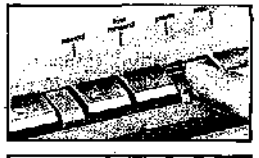
2. Insert and depress the Cassette in the compartment (if not loaded). Play will start.

3. To wind the cassette tape forward rapidly depress the FAST FORWARD (▸▸) key.
   Or, to wind the cassette tape in reverse rapidly depress the REWIND (◂◂) key.

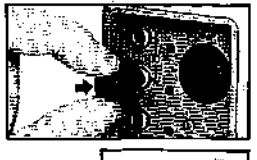
4. Depress the STOP/EJECT (■▲) key in order to interrupt the fast forward winding or rewinding. Playback will resume.

EDITING FOR APSS OPERATION / REDIGIEREN FÜR APSS-BETRIEB / EDITION DE LE FONCTI

The majority of commercially available pre-recorded Cassette Tapes are produced with suitably separated programme items for use with the APSS. When recording Cassette Tapes it will be necessary to separate the programme items while recording, or to edit gaps into a continuously recorded Cassette Tape. When recording from turntable records, programme item "editing" is not usually necessary because records are usually produced with gaps between bands.



1. Depress PAUSE (II) key at the end of item.

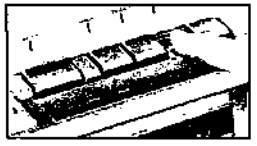


2. Fit the Erasing Plug, (supplied), into either the Left or the Right MIC socket.

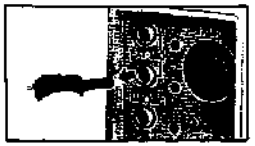
3. Turn the POWER switch to ⏻ /TAPE position.

4. Insert and depress the Cassette Tape into the compartment while pressing the RECORD (●) key.

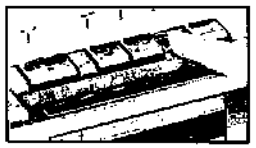
5. Depress (to release) the PAUSE (II) key. Then allow tape to move forward for 4 seconds.



6. After about 4 seconds, depress the PAUSE (II) key. The gap editing has now been completed.



7. Remove the erasing plug from the MIC socket.



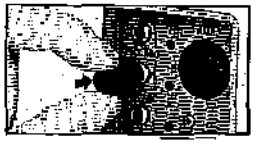
8. Depress the PAUSE (II) key again (to disengage) to starting the recording of the next programme item.

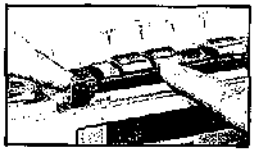
9. Perform the steps 1 to 8 throughout the recording process in order to edit the recording with gaps and suitable for APSS playing.

ERASURE OF RECORDED TAPES

Recorded Cassette Tapes are erased during the new recording process. It is also possible to erase Cassette Tapes without recording.

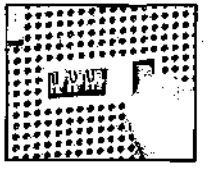
1. Disconnect jacks from AMP socket, (if connected).
2. Connect an erasing plug jack, (supplied), to either L (left) or R (right) MIC socket.





3. Insert and depress the Cassette Tape into the compartment while pressing the RECORD (●) key.

TAPE COUNTER



By pressing the reset button, the tape counter is set to "000" (at the start of Cassette Tape), and the integer displayed at the beginning of each recorded item can be noted. This provides a convenient reference.

In order to locate the position of any item recorded on the tape use of the noted tape counter integer that precedes each item.

1. Rewind the tape to the beginning.
2. Then set the tape counter to read "000" and start fast forward winding until the integer of the counter advances to the noted number.

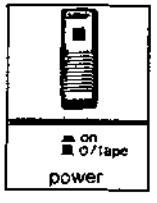
3. In order to stop the tape when the noted integer is reached, depress the STOP/EJECT (■▲) key twice. You are now ready to play the item by depressing the Cassette completely into the compartment. Or else you can depress the PAUSE (II) key when the noted integer is reached. For play disengage the PAUSE (II) key.

SLEEP SYSTEM

This unit is equipped with a system that automatically shuts off all radio and audio circuits the moment the end of tape is reached and the cassette is ejected.
This function operates on fast forward, rewinding or playing. This system can be utilized as a timer unit.

Listening to the Tape When You Sleeping

1. Start the playback process. Refer to steps 1 to 5 mentioned on page 43.



2. Push the POWER switch to ⏻ / TAPE position.

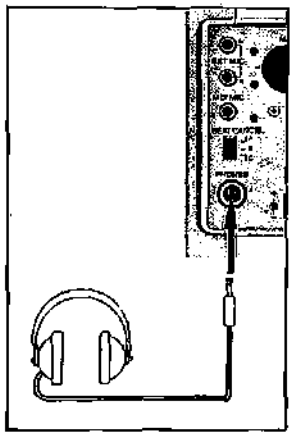
3. The running time of the tape will depend on the type of Cassette Tape. For example C-60 tape plays for half an hour before turning off the unit. If shorter period of time is required for timer, advance the tape to an estimated position on tape and then proceed with this operation, the timer period can be made shorter.

Tape of used	Timer Period
C-46	approx. 23 mins.
C-60	approx. 30 mins.
C-90	approx. 45 mins.

4. When the Cassette reaches the tape end the unit will automatically turn off.

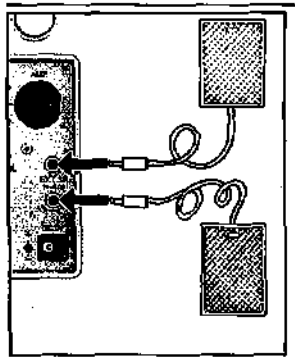
EXTERNAL UNITS

HEADPHONES



For listening to the reproduced sound in environments which are not suited to speaker sound reproduction, (excessively noisy places, or places where other people prefer silence), the use of stereo headphones is recommended.
Fit stereo headphones jack into the PHONES socket, (on the left side panel). The speakers output will be cut off when the headphones jack is connected.
SHARP Stereo Headphones (not supplied) are recommended:
Models HP-30; HP-40; HP-200; HP-300; or HP-400.

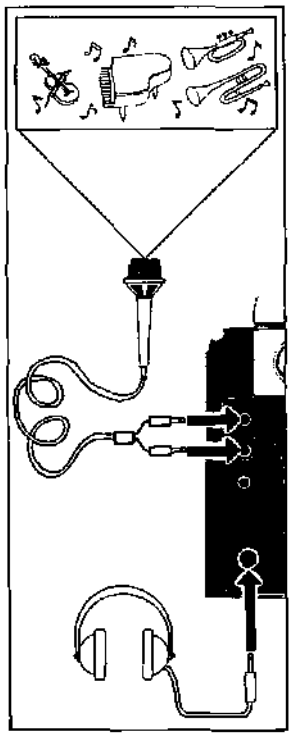
SPEAKER /



The Unit can power external speakers. The external speakers require a 4 ohms to 8 ohms impedance. Speakers leads need 3.5mm dia. connectors. Connections of the tune speakers should be phased correctly, (seek advise from the SHARP dealer.)
When the external speakers are connected, the internal speakers are cut out.

Note:
Mode Selector (Stereo or Mono) should not be set to the ST. WIDE.

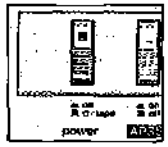
RECORDING WITH MICROPHONES



1. Stereo Recording
   a) Prepare two microphones, (400 ohms to 3k ohms impedances with 3.5mm dia. plugs), or use a SHARP stereo microphone MC-57CL/MC-55CL.
   b) Plug the microphone jacks into the EXT MIC R (right) and L (left) sockets.
   c) Arrange the microphones as shown in the illustration.

2. Mono Recording
   The Signal is recorded on either the left or right channel tape track. Plug the mono microphone jack into MIX MIC sock et.

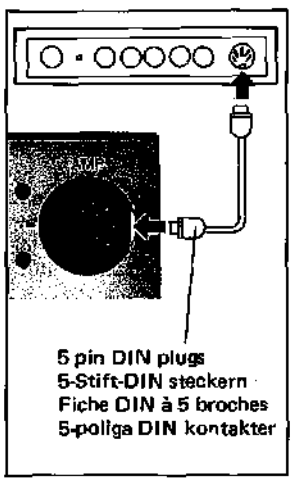
3. Use stereo headphones in order to monitor the recording. Monitoring is also possible with the built-in speakers, but this may result in a feedback whistle (howling); therefore the use of headphones is advisable. Connect headphones jack to the PHONES socket. The monitoring level can be adjusted by using the VOLUME control, which does not affect the recording level.



4. Turn the POWER switch to ⏻ /TAPE position.

5. Start the recording after referring to steps 2 to 7 (pages 39 and 40), of the explanation for Recording with Built-in Radio.
6. In order to utilize the unit as a public address system;
   1) Connect the microphone as mentioned, above.
   2) Disconnect the headphones jack from its socket.

RECORDING WITH AUDIO SOURCE / AUFNAHME MIT PROGRAMM-QUELLEN / E S



5 pin DIN plugs
5-Stift-DIN steckern
Fiche DIN à 5 broches
5-poliga DIN kontakter

1. Turn off the Unit and the external audio system.
2. DIN Type Input/Output Socket (AMP)
   Connect between this socket and same type socket on the external equipment — stereo amplifier, etc. — by using a standard lead fitted with two 5 pin DIN plugs on both ends for recording or reproduction of sources from the external equipments.
   Note:
   Avoid connecting with other tape recorders with this socket.

3. Turn on the power switch of external equipment.
4. Turn on the POWER switch to ⏻ /TAPE position.
5. Starting recording. Refer to steps 2 to 7, and 9 of Recording with Built-in Radio.
6. Slide the VOLUME and TONE controls in order to adjust the audio characteristics suited to the acoustic environment. Refer to steps 7–9 mentioned on page 33.

MIXING MONO MICROPHONE AND OTHER SOURCES

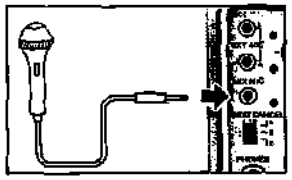
The GF-8H/8HX Unit can mix the output of a Mixing Microphone with the playback, input from the Unit's internal microphones, the built-in radio or other external audio equipment which is connected to the AMP Socket.

The Mixing Microphone requires 400 ohms to 3k ohms impedance and a 3.5mm dia. plug.

The input signal through the mixing microphone is reproduced or recorded in monaural on the right and left channel at an equal level.

Mixed Playback of Tape and External Microphone, (Mixed Recording not Possible)

1. Turn the POWER switch to the ⏻ /TAPE position.



2. Connect the Mixing Microphone to the MIX MIC socket.

3. Start the playback process. Refer to steps 2 to 5 of playing on page 43.

In order to balance playback level with the Mixing Microphone input, adjust the tape output level with the VOLUME controls. Also adjust the microphone input level with the MIC VOLUME control.

Note:
When howling (a feed-back whistle) occurs, move the microphone away from the speakers, or decrease the VOLUME controls.

Mixed Recording with Microphone and Built-in Radio

1. Follow the process of Steps 1 and 2 on page 58.
2. Prepare the unit for radio reception. Refer to the instruction on pages 32 to 36.
3. Adjust the microphone input level with MIC VOLUME control.
   Adjust the output level of the Radio with the VOLUME control.
4. For mixed recording proceed with Step 2 to Step 7 on pages 39 to 40 and Step 9 on page 41.

Mixed Recording of Microphone with External Audio Equipment

1. Proceed with operations of Step 1 and Step 2 on page 58.
2. Connect the external audio system output to the AMP socket on the side panel. Refer to Steps 1 to 4 of Recording from Audio Source on page 57.
3. Adjust the microphone input level with MIC VOLUME control. Adjust the output level of the external audio unit with the VOLUME control.
4. For mixed recording, proceed with Steps 2 to Steps 7 and Step 9 on pages 39 and 40.

MAINTENANCE

Lubrication

The unit has been lubricated at the factory and does not require any additional lubrication.

Cabinet

The cabinet can be cleaned with a soft cloth moistened in a mild solution of detergent and water. Never use organic solvents — benzine or thinners — as this may damage the surface.

SPECIFICATIONS / TECHNISCHE DATEN

GENERAL DESCRIPTION

Power Source:	DC 9V (6 x UM/SUM-1, R 20, HP-2 Batteries) or other DC external supply 3V (2 x UM/SUM-3, R 6 or HP-7 batteries for microprocessor)
Output Power (DIN 45 324):	MPO 6.4W (3.2W + 3.2W) using AC adaptor RMS 5W (2.5W + 2.5W) on DC.
Speakers:	9.2cm x 2 Cone Type
Semi-conductors:	1-LSI 13 IC's 1 Hall IC 45 Transistors 3 FET's 52 Diodes 11 LED's
Dimensions:	Width; 396mm Height; 165mm Depth; 69.5mm
Weight:	2,8 kg (no batteries)

TAPE RECORDER

Tape:	Philips Type Cassette Tape
Frequency Response:	40Hz – 16000Hz (Metal Tape) 40Hz – 12000Hz (Normal Tape)
S/N Ratio:	50dB
Input Impedance:	Mix. Mic; 600 ohms Ext. Mic.; 600 ohms
DIN-Input:	0.1mV/kohms.
Loaded Impedance:	Headphones; 8 ohms to 32 ohms External Speaker; 4 ohms to 8 ohms

RADIO

Frequency Range:	LW; 155kHz – 281kHz (9kHz intervals) MW; 531kHz – 1602kHz (9kHz intervals) FM; 87.5MHz–108.0MHz (0.05MHz intervals)

MANUFACTURER'S NOTE

The manufacturer of this Unit reserves the right to change the specifications, materials of production, and the design of the Unit. However any such alternations will not impair the quality of construction or grade of performance.

SHARP

SHARP CORPORATION

22-22, Nagaike-cho, Abeno-ku, Osaka, Japan

TINSZ0251AFZZ

Printed in Japan