HILTON MICRO-75C

SOUND SYSTEM

OPERATING INSTRUCTIONS

Please read this manual carefully, and keep it in a safe place for future reference. It contains valuable information about your new Hilton Micro-75C sound system: its features, how to operate it, how to take care of it, how to avoid damage to it, what to do if any problems should occur.

If you should encounter any problem in setting up or in operating your Hilton sound system, or if you have any question which is not answered in this manual, please write or phone.

HILTON AUDIO PRODUCTS, INC.
1033-E SHARY CIRCLE - CONCORD, CA 94518
PHONE (510) 682-8390 FAX (510) 682-8497

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GUARANTEE OF SATISFACTION

Any purchaser of Hilton sound equipment, if not completely satisfied with it, may return such equipment in undamaged condition, freight charges prepaid, within 30 days after original purchase, for full refund of its purchase price.

TWO-YEAR LIMITED WARRANTY

For a period of two years after initial purchase, Hilton Audio Products will, at its option, either repair or replace without charge any Hilton sound system or component thereof which fails in normal service, subject to the exceptions listed below. Any reasonable shipping and transit insurance charges, within the continental U.S.A., incurred in the course of warranty service will be paid by Hilton Audio Products.

EXCEPTIONS TO WARRANTY:
Warranty is restricted to correction of any defect which becomes evident in the course of normal use and operation, and does not cover any of the following:

1. Replacement of phonograph needles, which are intrinsically fragile.

2. Repair of normal wear and tear: scratches, nicks, dents, etc.

3. Modernization or alteration to specifications which were not in effect at the time of original purchase.

4. Repair of damage which is caused by accident or abuse and not by any defect in the sound system.

5. Reimbursement for any repair charges not authorized by Hilton Audio Products.

6. Repair of damage which is caused by connecting the sound system to any portable generator or invertor.

7. Repair of damage which is caused by using any other connection or hookup which is stated in this manual to be improper and likely to cause damage to the sound system.

8. Replacement of any unit which has been modified or altered in any way, by adding inputs or outputs, by permanently changing its appearance by painting, engraving in an exposed spot, etc.

9. Payments of any transit charges, freight, insurance, customs charges or brokerage fees, which may be incurred in providing warranty service involving international customers. Any such charges, if advanced by Hilton Audio Products, will be invoiced to the owner of the equipment.

10. Hilton Audio Products assumes no responsibility for any special, incidental or consequential damage.

TOP DECK

ON-OFF SWITCH

The ON-OFF switch is located at the left rear of the top deck. It should always be off while the system is being hooked up or disconnected.

TONE ARM

The cartridge and needle in the Micro-75C are separate units. The needle used is a .7 mil diamond. Needles for this cartridge are easily obtained and replaced. The replacement needle number is a Pfanstiehl 793-D7, or an equivalent.

To replace the needle, grasp the needle assembly and pull the front downward away from the head while pulling towards the front of the head. Reverse this procedure to install the new needle.

If the cartridge should need to be replaced use the following procedure. Remove the turntable by lifting it out of the spindle well and set it aside. Turn the amplifier upside down onto a soft support, one that is high enough to allow the underneath side of the tone arm to be accessible. Remove the needle. The cartridge is held in place by a spring clip. Press down on the clip extension, located at the front edge of the cartridge, releasing the cartridge so it may be lifted out. Being very careful, disconnect the wires from the small connectors at the end of the cartridge. Reinstall by reversing this procedure.

The counter weight is set to tracking pressure of 5 grams. This stylus is heavier than that of a home stereo turntable to insure against needle skipping when working on temporary stages or rickety tables. To decrease this tracking pressure will increase the risk of needle skipping, without appreciably lengthening the life of either needle or records.

To play 12" records, slide the tone arm clip all the way to the right, to clear the record. Be sure to slide it back, all the way to the left, before closing the the amplifier lid. For carrying, the tone arm must be locked in its clip.

TURNTABLE AND DRIVE MECHANISM

The foam pad on the platter is slightly less in diameter than a 7" record, so that records are easy to remove. The platter spins on a ball bearing which is secured in the bottom of the shaft well, and is almost free of friction.

The motor is a hysteresis-synchronous gearmotor. It is unaffected by voltage fluctuations and will hold speed at very low voltage. The motor drives the platter directly, with a drive wheel which has a soft rubber rim, and speed change is accomplished by moving the entire motor assembly towards or away from the center of the platter. Speed is infinitely variable from 29 to 85 RPM. When the speed control knob is in the OFF position, the drive wheel is disengaged from the underside of the platter, and the motor is shut off. This knob should be placed in the OFF position for carrying, or when the system is being used for voice only reproduction or for tape playback.

The speed control is calibrated for 60 cycle current, unless 50 cycle calibration is ordered.

STROBE

A neon-lighted strobe is provided. Set the speed adjusting knob to the required speed marks on the top deck. By viewing the strobe and adjusting the speed control knob, until the strobe marks remain stationary, an accurate speed may be obtained. The bulb is a neon, no. NE-51H or B2A. It has a bayonet base; to remove it push in on the bulb, turn it to the left (counterclockwise) and it will pop out. Unplug the power cord before removing the bulb.

110V/220V SWITCH

Under the platter on the top deck is a 2-position switch marked 110v and 220v. This switch may be set in the proper position by using a screwdriver to turn it. The switch is designed so that it can not be accidentally changed to the wrong position. If the switch is set for 110 volts, the unit will be seriously damaged by connecting it to 220/240 volt power.

Units which have been damaged by connecting to a wrong power source will not be covered by the warranty.

REAR PANEL

AC RECEPTACLE

Before plugging in, make sure that the power source is correct for the voltage selector switch setting. The power cord of the Micro-75C is detachable, and an adapter is furnished for use where the wall sockets are not of the 3-wire grounded type. Where the sockets are of the grounded type, this adapter should not be used.

CIRCUIT BREAKER

Protects the amplifier from being damaged by a surge in the supply voltage, or by a short circuit in the system. If the breaker should trip, wait a moment, press in on the reset button on the rear pannel. Normal operation should be restored. If the breaker again trips almost immediately, shut off the amplifier and do not attempt to use it until the cause of the problem has been determined.

SPEAKER OUTPUT JACKS

The speaker outputs are 1/4" mono phone jacks, compatible with standard 1/4" mono phone plugs. Adapters are available if your speakers use Cinch Jones plugs. The speaker jacks are connected in parallel with each other. Optimum impedance load is 4 to 16 ohms. Do not connect any combination of speakers which produces a net impedance load of less than 4-ohms. A series "Y" connector is furnished with the Micro-75C for use in connecting speakers to the unit. See the section titled SPEAKER HOOKUP for detailed instructions for hookup of multiple speakers. With proper hookup, the Micro-75C will drive as many as four Hilton speakers.

Do not connect a tape recorder or any other sound equipment to the speaker jacks of the Micro-75C. Doing so could cause overheating of the amplifier, and possibly damage it. See the section of manual regarding taping and playback for proper connections.

FRONT PANEL

PHONOGRAPH SECTION

The phonograph volume control adjusts the loudness of the music program, while playing a record or playing back a tape. Extremely fine adjustment of phono volume can be done by using the Hilton remote volume control assembly in conjunction with the phono volume control.

REMOTE CONTROL JACK: By plugging in the Hilton remote volume control assembly, the music volume can be adjusted with the knob at the microphone, without touching the knob on the front panel. Recommended operation: Plug in the remote control and turn its volume full on. Set the phono volume control at a level slightly higher than you need for best voice-music balance. With the remote control, decrease the music level so that your voice comes out clearly over the music. Without touching the amplifier knob you can now either drop the music volume to 25% of its present level or increase it for added excitement and lift for sing along choruses.

PHONO BASS AND TREBLE CONTROLS: Adjust the bass and treble compensation for the music program. They have no effect on the voice program. Very wide latitude is provided, and we recommend using only the minimum adjustment from normal which will give you the music sound that you desire. For very worn, scratchy records, turning the treble control about 45 degrees to the left will filter out a large portion of the surface noise. See also the section titled GETTING THE MOST FROM YOUR HILTON.

MICROPHONE SECTION

Two high impedance microphone inputs are provided and both are controlled by the same volume and tone control. For a hand held mic, use either input: The second input is provided so that a wireless microphone may be used without unplugging the hand held mic. The receiver of the wireless mic will have its own volume control, so that you can vary its volume without disturbing that of the hand held microphone.

MICROPHONE TREBLE-BASE CONTROL: One of the features which makes the Hilton sound systems outstanding is the ability of their voice circuits to reproduce cleanly the high frequencies which are absolutely essential for voice clarity and understandability of commands. If you have a voice in the bass range, turn the tone control to the right far enough to be sure that there is no boomingness; if you are a baritone, leave it near the normal setting. Even if your voice is high in pitch, do not turn the tone control more than 30 to 40 degrees to the left of normal. If you have not worked with Hilton equipment before, do not make the mistake of tuning out the

highs in the voice to make the Hilton amplifier sound perhaps more like the sound of your voice on your previous sound system. To do so would be similar to buying a new color television receiver, and then tuning it so that the picture is black and white!

TAPE MUSIC AND TAPE VOICE JACKS

These jacks may be used with a stereo recorder to make a two track tape recording, with voice on one track and music on the other. They are also used to playback a two track tape through the Micro-75C. See the sections titled MAKING TAPE RECORDINGS and PLAYING BACK TAPE RECORDINGS.

SETUP AND OPERATION

Turn all volume controls off, power switch off, set the tone controls at normal. Set up your speaker or speakers, locating them above the heads of the dancers and positioning them so that their cones of sound cover all areas of the floor. Connect them to the amplifier, following the instructions given in the section titled SPEAKER HOOKUP. Plug in your microphone.

Check to be sure that the power source is correct for the voltage selector switch setting. Plug in the power cord, and turn the system on. Start the turntable and see that it strobes correctly. Turn on the microphone and test by speaking into it--not by blowing into it. Put on a record and check music volume and tone controls. In a strange hall, put on a record and walk the floor to make sure that your speakers are properly located to cover the entire floor with a comfortable level of sound.

For more information about operation, see the section titled GETTING THE MOST FROM YOUR HILTON.

SPEAKER HOOKUP

Depending upon the size, shape, and acoustic characteristics of a hall, getting comfortable sound coverage may require one, two or more speakers. It is important to locate them properly, for best coverage of all areas of the floor. For information on locating speakers in the hall, see the heading SPEAKER LOCATION in the section titled GETTING THE MOST FROM YOUR HILTON.

It is also very important to connect them properly, to the amplifier and to each other, to get the best performance from the amplifier and from the speakers.

In multiple speaker hookup, it is necessary to consider impedance. This is the electrical resistance of the voice coils of the speakers. The lower the impedance, the more electrical energy is applied to the speakers. This is why specifications on power amplifiers will show a given power rating into an 8-ohm load, and a considerably higher power output into a 4-ohm load.

If a loudspeaker were 100% efficient, all of the electrical energy delivered to it by the amplifier would be converted into sound energy. Unfortunately, speakers are not 100% efficient; in fact even the highest quality speakers in the best designed enclosures are no more than 25% efficient. The electrical energy which is not converted to sound by a speaker is converted into another form of energy--heat. This heat must be dissipated at two points: the voice coil of the speaker, and at the amplifier. Excessive heat at either point can cause damage to the sound system.

By carefully following the instructions in this manual for speaker hookup, you will maintain the best net impedance load for various speaker combinations. Improper hookup of speakers can cause embarrassing interruptions of your program, even if you are using Hilton speakers, Over-driving speakers with low power ratings or connecting them improperly can cause damage to the speakers, and in event of a shorted voice coil, cause damage to your amplifier.

ONE HILTON HC-8 OR LB-1 SPEAKER

Plug directly into one of the speaker jacks. Impedance: 4-ohms.

ONE HILTON FOLDED HORN SPEAKER

Plug directly into one of the speaker jacks. Impedance: 8-ohms.

TWO HILTON HC-8 OR LB-1 SPEAKERS

Plug each speaker into a **series "Y"** , then plug the "Y" into one of the speaker jacks. Impedance: 8-ohms.

TWO HILTON FOLDED HORN SPEAKERS

Either plug both speakers into the amplifier or plug one speaker into the amplifier and connect the second speaker to the first speaker. Impedance: 4-ohms, either way.

MORE THAN TWO HILTON FOLDED HORN SPEAKERS

DO NOT CONNECT MORE THAN TWO SPEAKERS TO THE UNIT WITHOUT CAREFULLY READING THE INSTRUCTIONS WHICH FOLLOW, AND THE DIAGRAMS CONTAINED IN THIS MANUAL.

The minimum impedance load for the Micro-75C amplifier is 4-ohms, for best operating results. Hilton folded horn speakers are 8-ohms and the LB-1 and HC-8 are 4-ohms. Two Hilton folded horn speakers each connected direct, produces a 4-ohm load. If you should connect four Hilton folded horn or two HC-8 speakers directly to the Micro-75C, this parallel connection produces a 2 ohm load, which at high drive levels will produce excessive energy which is dissipated in the form of heat.

The hookup diagrams in this manual show correct use of the series "Y" connectors for hookup of 2, 3, and 4 speakers, to obtain equal volume level from each speaker and maintain proper net impedance. If it should be necessary to connect 5 or more speakers, a slave amplifier should be used.

If you must use a speaker hookup not shown in these diagrams, or if you plan multiple hookup of speakers not manufactured by Hilton, the following points must be considered:

1. You must use a hookup which will produce a net impedance load of 4-ohms or higher.

2. The net impedance to each leg of a series "Y" connector should be the same, or the speakers driven by one leg will receive more energy and therefore produce more volume than those driven by the other leg.

3. Different makes and types of speakers have different degrees of efficiency and will produce different sound volumes when driven at the same amplifier output level. Mixing different types of speakers is not recommended, but if you must do so, use the more efficient speakers nearest the center to cover the main portion of the floor, and the less efficient ones at the ends to cover the two front corners of the floor.

HOW TO DETERMINE NET IMPEDANCE

To determine the net impedance of a given combination of speakers, it is necessary to understand and apply the following:

IMPEDANCE: The resistance produced by the voice coil of a speaker, expressed in ohms. Hilton folded horn speakers are 8-ohms, the HC-8 and LB-1 are 4-ohms; other makes have varying impedances, usually from 4 to 16 ohms.

PARALLEL CONNECTION: A hookup in which the output of the amplifier is divided among speakers, with part of the output going to each speaker. The amplifier speaker jacks are connected in parallel. The jacks on top of the Hilton folded horn speaker are also connected in parallel with each other.

SERIES CONNECTION: A hookup in which all of the amplifier output passes through each speaker in turn, instead of being divided up among them. If you plug a series "Y" connector into the amplifier and connect one speaker to each leg, you have the speakers connected in series.

SERIES-PARALLEL CONNECTION: If you have two groups of speakers which are connected in parallel within the group, and connect one group to each leg of a series "Y" connector, you have a series-parallel connection.

NET IMPEDANCE--The combined impedance of all speakers in a hookup:

IN PARALLEL--the impedance of 1 speaker, divided by the number of speakers in the parallel hookup.

IN SERIES--the impedance of 1 speaker, multiplied by the number of speakers in the series hookup.

IN SERIES-PARALLEL--the net impedance of each parallel group, multiplied by the number of parallel groups connected in series.

CONNECTING SPEAKERS OTHER THAN HILTON SPEAKERS

Any one speaker with the impedance of 4-ohms or higher can be connected directly to the Micro-75C.

Before connecting two speakers, first find out their impedance, if possible. If they are 8-ohms or higher, use the same hookups as for Hilton speakers. Two 4-ohm speakers must be connected in series. For other combinations, follow the instructions given above to obtain a net impedance of no less than 4-ohms.

CHECK THE POWER RATING OF THE SPEAKER AND BE CAREFUL NOT TO EXCEED IT. Overdriving of a speaker with a low power rating can result in any of the following: 1. Distortion of the program. 2. Voice coil may become jammed at one end of its excursion, making the speaker inoperative. 3. A short circuit may occur in the voice coil, ruining the speaker and possibly causing damage to your amplifier.

NEVER CONNECT TWO AMPLIFIERS TO THE SAME SPEAKER OR SPEAKERS OR YOU WILL DAMAGE YOUR MICRO-75C - NOT COVERED UNDER WARRANTY.

MAKING TAPE RECORDINGS

MAKING CASSETTE RECORDINGS

There are many types and brands of cassette recorders on the market, ranging from very compact and inexpensive, up to premium quality models with quite sophisticated features. Even within the same price range, one model may have different characteristics from another, and the same hookup which produces good results with one recorder may not do so with another. Therefore, it may require a bit of experimenting to arrive at the hookup which gives the best results with a given cassette recorder.

MONAURAL CASSETTE RECORDINGS

To make a monaural cassette tape recording from the Micro-75C, connect a shielded cord from the TAPE RECORD jack on the rear panel to the microphone input on the cassette recorder. If you connect to the auxiliary input on the recorder, you will not get results. Put on a record and make a test tape.

You may find that the signal from the amplifier is strong enough to overload the microphone input on the recorder, causing distortion on the tape. Since it is impossible with a single output jack to produce a signal which is compatible with the inputs on every one of the multitudes of make and models of cassette recorders, we obviously cannot guarantee that any direct hookup will produce good results in every instance. If you find that the signal from the Micro-75C does overload your recorder, switch from the mic input to the auxiliary input on the recorder. Make another test tape. The auxiliary input is designed for a stronger signal than that of the microphone input. Also try connecting the "Monitor All" rear janck on the Micro-75C to the line in on the tape recorder. One of these hookups should produce good results.

Another way to make cassette recordings is by the use of a telephone pickup. These are available at many outlets--Radio Shack, for instance. To use one of these pickups, loop your speaker cord around it and secure it snugly with a rubber band. Plug the other end of the cord into the microphone input on the recorder. With some cassette recorders, this produces better results than a direct hookup. No matter what recorder is used, no damage can be caused, because there is no direct contact with your sound system; the pickup is made through the insulation on the speaker cord. (The cord must be connected to a speaker, or no signal will be produced.)

The better the quality of your cassette recorder, the better the quality of your recordings will be. If you have one of the better units, in the medium or higher price range, and you use its automatic recording level control (ARL or ALC) it will record with a wide range of input signal strength, but during pauses with no signal, there may be annoying hash or background noise. Some of these units also have a manual adjustment for recording level, therefore we recommend using the manual control to avoid this noise problem.

CAUTION

Do not allow anyone to connect a tape recorder directly to the speaker socket, to the series "Y" connector, or to any socket on a speaker. Some recorders have a shorting switch across their input; if this switch is closed, it will cause your amplifier to work into a short circuit. Some recorders have inputs of such low impedance that if they

are connected in a speaker circuit they produce the same effect as improper speaker hookup. In either case, your amplifier will overheat and may be damaged.

MAKING TWO TRACK RECORDINGS ON A STEREO RECORDER

On the front panel are two jacks, marked TAPE MUSIC and TAPE VOICE. These jacks may be connected to a stereo cassette deck to make recordings with voice on one track and music on the other. Again the quality of the recordings will depend upon the quality of the recording equipment; but with a good stereo deck you can make recordings of excellent quality.

The outputs from these jacks is compatible with the line or auxiliary inputs of a stereo deck, and will overload the microphone inputs. The output signal is not compensated, and is not affected by the volume or tone controls on the Micro-75C.

Connect a shielded cord from the TAPE MUSIC to the left line or auxiliary input on the stereo deck, and another cord from the TAPE VOICE jack to the right line auxiliary input. Put on a record, and adjust the control for the left channel to proper recording level. Speak into the microphone and adjust the right channel to proper recording level. All adjustments of recording must be done on the recorder, since the amplifier volume controls have no effect on the output level to the recorder.

Now set the volume and tone controls on the Micro-75C to the voice-music balance, volume and tone quality that you desire, and as you speak you can tape the music program on the left channel and the voice program the right channel.

PLAYING BACK TAPE RECORDINGS

MONAURAL TAPES

Connect a shielded cord from the line or auxiliary output of the tape recorder to the MONITOR MUSIC jack on the rear panel. Set the phono bass and treble controls at normal and the phono volume at or below nine o'clock. Turn up only enough volume on the tape recorder to get a soft listening level, and then adjust the phono volume, bass, and treble controls to get the sound quality that you want. Many tape recorders are a bit lacking in brilliance on playback through an amplifier, and you may wish to decrease bass and increase the treble to get the tone quality that you want.

PLAYING BACK STEREO TAPES

Since the Micro-75C is a single-channel amplifier, any stereo tape played back through it will produce a monaural program. However, a stereo or two track tape may be played back through the Micro-75C, and you can control the left/right balance as you wish. Also you can control the tone compensation of either channel independently of the other.

To play back a tape which was made from the Micro-75C according to the instructions MAKING TWO TRACK RECORDINGS above:

Connect a shielded cord from the left channel output on the tape recorder to the MONITOR MUSIC jack on the rear panel. Connect from the right channel output to the TAPE VOICE jack on the front panel. Set the output controls on the tape recorder to approximately equal balance. If the stereo tape you are playing back has music on one chanel and voice on the other, use the MONITOR MUSIC jack for playing the music chanel.

You can now play back your tape recording, and by using the phono and microphone volume controls, set any voice-music balance that you choose; you can adjust the bass and treble compensation for the music without changing the tone of the voice program; you can adjust the voice to be as crisp or as mellow without affecting the music program.

CAUTION: Do not use microphone inputs for tape playback.

GETTING THE MOST FROM YOUR HILTON, AND AVOIDING DAMAGE TO IT

MICROPHONE TECHNIQUE

Always work close to your mic--never let it get more than an inch from your lips. Work straight into it, as much as possible. Holding the mic too far from your lips, or speaking across it rather than into it, can rob you of more than half the power and efficiency which is built into your Hilton. If you hold your mic two inches from your lips, it won't pick up half as much sound as at one inch--it will pick only one-fourth as much. If you then try to turn up four times as much gain in an attempt to be heard, you will be fighting feedback.

FEEDBACK

The feedback squeal can occur at any time that the volume is turned up on an amplifier and an open mic is near a loudspeaker. The more volume that is turned up, or the closer the mic is to the speaker, the louder the feedback will be. The squeal is caused by sound from the speaker being picked up by the mic and fed back into the amplifier. It is almost always the result of bad mic technique, working so far from the mic that you have to turn up an excess of volume in order to cover the floor. It can also be caused by standing too close or in front of a speaker. Only very rarely is feedback caused by any defect in the sound system.

VOICE-MUSIC BALANCE

For the dancers to hear and understand your commands, your voice must come out clearly over the music. Never turn up so much music that your commands cannot be heard clearly. Often, when the voice is buried in the music, dancers may ask for more voice. If the voice program is loud enough to be heard all over the hall, what is really required is not more voice, but less music. As a general rule, the larger the hall, or the more reverberant, the more the voice must stand out over the music in order for the dancers to hear. If you can't judge the proper balance yourself, get someone you can trust out on the floor, to help you get the proper volume and voice-music balance for that particular hall.

SPEAKER LOCATION

Speakers should be placed so that the entire floor is covered with sound. They must be high enough so that when the sound level is comfortable at the rear of the hall, it is not deafening to the dancers at the front. Speakers should be elevated and aimed at the dancers at the rear of the hall, so the most intense part of the beam of sound passes over the heads of the dancers at the front. You should set up so that you can get close enough to a speaker to be able to hear the voice-music balance, but not so close that you are continually fighting feedback. Try never to aim a speaker directly at a hard, flat, painted or panelled wall, which will cause echo and bounce-back of sound. If you must direct speakers towards such a surface, tilt them downward, so that the beam of sound is aimed at dancers, not at the wall. Wherever it is practicable, direct speakers towards an absorbent surface--one which is draped or acoustically treated.

USING YOUR TONE CONTROLS

In a hall which is excellent acoustically, you can set your tone controls, within limits, almost any way you choose, to get the sound quality of voice and music that you prefer.

But in a hall which is reverberant, not only must the voice-music balance be adjusted to compensate for the acoustic conditions, but the tone controls for both music and voice must also be adjusted. In a reverberant hall, not only must you cut the music volume down, but you should also use your tone controls to remove excess bass boominess from the music, and take out some of the highs in the music, which would interfere with the highs in the voice. Adding more treble with the mic tone control will help in making the voice stand out over the music. In a hall with a lot of echo, the object is to get as much intelligibility into the program as possible, even at the sacrifice of pleasing overall sound quality. Even if the overall effect is not what you would prefer to hear, if the dancers can understand it is possible for them to dance.

REVERBERATION TIME

To determine the reverberation time of a hall, stand in the center of the empty hall, clap your hands, and carefully count the number of seconds before the sound dies away completely. 1 second or less: excellent acoustic conditions. 2 to 2-1/2 seconds: OK but not great, with the speakers placed properly and careful attention to voice-music balance and tone compensation, it is possible to get fairly good sound, with good intelligibility. 3 seconds or more: the sound will not be good, no matter what equipment you use or how well you operate it. Only acoustic treatment of such a hall will produce sound which is adequate.

NEEDLE CARE

Your needle should with proper care last hundreds of hours. Be careful not to drop it on the record or on any metal

surface. Do not drag it across the surface of the record, finger tip, or foam pad. Be sure that the tone arm is locked firmly in place before securing the amplifier.

HANDLING AND TRANSPORTING

Your Hilton is designed for ruggedness, and with the normal handling to be expected in portable use, it will give you years of trouble-free service. By using the protective carrying cartons furnished with each Hilton sound system, you may stow components in any position for hauling, as long as they are protected from being bumped or banged around.

ROUTINE INSPECTION AND MAINTENANCE

Routine cleaning and inspection of your sound system, microphone and cords will help in preventing trouble and maintain the appearance and performance of your Hilton.

PAINTED AND FINISHED SURFACES

Clean all of the painted and finished surfaces and knobs with a soft cloth or sponge dampened with a mild detergent solution. Do not use chemical cleaners or solvents as they may damage the paint and plastic knobs. A vacuum cleaner with a duster brush attachment does a good job cleaning dust and loose dirt from the top deck and panel of the amplifier.

CHECKING AND CLEANING PHONO NEEDLE

Always keep a spare needle, in case of damage to the one that you are using. To check your needle, put on a familiar record, and listen carefully to the music. Change to a new needle, again listen carefully for any change in the sound of the music. One symptom of a worn needle is a loss of highs in the music, making it sound bassy; this tells you that it is time to change needles. If dust accumulates on the needle around the cartridge, gently brush it off.

To replace the needle, grasp the needle assembly and pull the front downward away from the head while pulling towards the front of the head. Reverse this procedure to install the new needle.

TURNTABLE MAINTENANCE AND ADJUSTMENT

Any fluctuation of turntable speed is the result of slippage between the drive wheel and the underside of the turntable platter. This slippage may be caused by an accumulation of oily film on the underside of the platter and the rim of the drive wheel. Also the shaft and bearing may have become dry or gummed up, not allowing the platter to spin freely.

For routine maintenance, you should obtain a spay can of a non-lubricating cleaner, the type used for degreasing radio and TV tuner controls. Alcohol may be also used for cleanig. Perform the following procedure about every six months or more often if the unit is heavily used.

Lift the platter straight up out of the shaft well. Dampen a cloth with the cleaner and thoroughly clean the underside of the platter inside the strobe dots, the platter shaft, and the rim of the drive wheel. CAUTION: DO NOT GET ANY CLEANER ON THE STROBE DOTS. Using a pipe cleaner or Q-Tip dampened with cleaner, clean the inside of the brass shaft well. Lubricate the shaft with a light film of Lubriplate or light machine oil. Reassemble the unit and check that the platter spins freely. If slippage was because of oil on the platter and drive wheel, this will correct the problem.

If after cleaning and lubricating the speed still does not hold constant, it is the result of incorrect pressure of the drive wheel on the underside of the platter. This pressure is controlled by a spring which exerts upward pressure on the motor mount. If the unit has been dropped or bumped, a change in the spring tension may occur.

To check the tension of this spring, with the turntable turning and set for 45 RPM, stop the platter with your finger. You should feel a resistance from the torque of the motor. When you remove your finger, the platter should reach normal speed in less than one revolution. If it does not, the spring tension is too weak and the drive wheel is slipping.

To adjust the spring tension, lift the platter out and locate the slotted adjusting screw, located about 1/4" from the rim of the drive wheel. Loosen the lock nut, and turn the screw counterclockwise to increase the spring tension, or clockwise to decrease the tension. Increase the spring tension no more than necessary. When the tension is correct, tighten the locknut and replace the platter.

CHECKING OF PLUGS, SOCKETS, AND CORDS

Cords, plugs, and sockets take more punishment than any other part of your sound system. For this reason, they should get extra attention, more frequent checkups, and extra care in handling and stowing to prevent failure in operation. Fortunately, there are advance warning signals before these components fail. If you know what to look for, you can avoid embarrassing interuptions in your program.

To check your cords, set up your sound system, plug in your mic and put on a record. As you talk, wiggle each plug in its socket and flex each cord along its length; do this for all mic and speaker cords. Listen for static and interruptions, which are warning signals of future trouble.

If plugs become loose and slip in and out of their sockets much more easily than when they were new, they are becoming worn and will cause intermittent operation. The plugs and sockets should be replaced. Corrosion is a major cause of intermittent problems. If plugs become tighter rather than looser then an oxidized film is building up on the connecters. Polish these plugs with very fine steel wool to bring back the brightness. Wipe plugs thoroughly and take care to prevent any particles from the steel wool getting on or in your set.

CHECKING THE MICROPHONE

Check your microphone from time to time-has its response changed? A mic whose diaphragm is starting to drag will lose its bass response and sound tinny, and there will be an increase susceptibility to feedback. Care of a microphone is fairly simple. Don't drop it, don't blow into it and don't spray or squirt anything into it in an attempt to clean it. Keep your microphone in a dry place when not in use. Excessive moisture inside the microphone can cause corrosion and oxidation resulting in unnatural sound or a complete microphone failure. While checking your microphone look for any screws that might have loosened on the mic itself or on the remote cord assembly. Carefully tighten any loose screws or nuts, replace any that are missing. Examine the microphone cable especially where the wires enter the plugs-look for frayed or bare wires and loose connections. With the microphone plugged into the amplifier and turned on, speak into the mic while moving the cable. Listen for crackling noises or intermittent operation indicating broken or loose wire/s. Microphone cables are constructed with shielded cable and like any wire will withstand only so many twist and bends before the wires will break. When storing your mic cord, coil the cord avoiding sharp bends-this will certainly extend the life of your microphone cord assembly.

CHECKING SPEAKERS

If a speaker has been dropped or handled roughly, it may develop a misalignment of the voice coil resulting in a "dragging cone". To check for this, hook up the speaker to the amplifier and put on a record. Turn the volume off, and set the bass at maximum and the treble at minimum. Put your ear close to the speaker and turn up the volume only enough to hear the music clearly. If the cone is dragging, you will hear a rasp on each bass note. The speaker may sound normal at your usual volume and tone setting, but over time the problem may become worse and will require reconeing of the speaker. While the speaker is connected set your tone controls for normal and turn up the volume while playing a record. Listen for any rattles or vibrations caused by loose grill or trim. Tighten any screws as necessary.

Establishing a routine schedule of cleaning and examination of your sound equipment could very well keep you from having an equipment failure at a most important time. Whenever you set up or take down your equipment, keep your eyes open for signs of wear, corrosion, looseness, etc. and correct any of these problems as soon as possible. Your equipment serves you well and without out it you're out of business-give it the care it deserves.

CORRECT HOOKUP FOR A SLAVE AMPLIFIER

TAPE RECORD JACK

In certain situations it is desirable to use not one, but two or more amplifiers, each driving its own speakers, for proper sound coverage in halls which are too large to cover with one amplifier; to put sound in an additional room which requires a different sound level than the main hall; or to cover the small section of a "L" shaped hall which requires less volume than the main section of the floor, etc.

On all Hilton amplifiers, the TAPE RECORD jack is designed for this purpose, as well as that of making tape recordings. To connect a slave amplifier, use the following procedure:

Set up the main amplifier with its speakers to cover the area desired. Set up the slave amplifier with its speakers to cover its assigned area. If the slave amplifier is to be located no more than 30 feet maximum away from the main amplifier, plug a shielded cable from the TAPE RECORD jack of the main amplifier into a microphone input on the slave amplifier. SET THE TONE CONTROL FOR THIS MICROPHONE INPUT TO FULL BASS, ALL THE WAY COUNTERCLOCKWISE. Put a record on the turntable of the main amplifier and turn up enough volume to cover its assigned floor area at a comfortable sound level. Then turn up the microphone volume on the slave amplifier to produce sound coverage of its assigned floor area at a comfortable level. No further adjustment of the slave amplifier will be necessary. Every change of volume, treble, or bass which is made on the main amplifier will be duplicated by the slave amplifier.

If the slave amplifier must be located more than 30 feet away from the main amplifier, the use of a plain shielded high impedance cable is not recommended, because of the noise that will be introduced into the system. In this case, you must use sufficient length of LOW IMPEDANCE cable, and a pair of LINE MATCHING TRANSFORMERS. Plug one transformer into the TAPE RECORD jack on the main amplifier, and connect the cable and the other transformer. Plug the second transformer into the microphone input on the slave amplifier and proceed as described above.

Disconnecting a slave hookup: Before disconnecting, make sure that both the main and the slave amplifiers are turned off. If they are turned on and volume controls are turned up, unplugging will cause a loud pop in the speakers, and even possibly damage them.

Some installations require the use of more than one slave amplifier; in some cases speakers must be located at both sides or both ends of the hall. Please contact Hilton Audio Products for professional advice before attempting such installations.

IN CASE OF TROUBLE

Your Hilton was carefully assembled and tested before it was delivered to you. It is backed by our two-year warranty against failure. Refer to page three for complete warranty information. If trouble should occur in the course of normal use and operation, which is not caused by accident or abuse, we will promptly honor the terms of our warranty, PROVIDED THAT YOU NOTIFY US BEFORE ATTEMPTING REPAIR. Upon such notification, we will make every effort to correct the problem, by having repair done locally if feasible, or by replacement of the defective unit at our expense, or by furnishing loaner equipment for your use while we do the necessary repair.

NON WARRANTY REPAIR: Even when your warranty is no longer effective, we advise that if a problem should develop, it would be wise to phone us before attempting repair. It is quite possible that we could save you time and money in helping you get your sound system back in operation.

BEFORE NOTIFYING US:
If any part of your Hilton sound system should develop a problem, the information that you give us should be as detailed as possible, in order for us to provide you the best and fastest service possible.

For example, if a microphone should stop working, the source of the trouble might be in the microphone itself, in the cord, or in the input of the amplifier. A few simple tests before notifying us would be of great value in isolating the source of the problem and correcting it quickly for you. Listed below are some tests that you could make in the event of trouble, which would be of great help to us in giving you the best possible customer service.

STROBE BULB OUT OR INTERMITTENT:
The bulb probably needs to be replaced. If the bulb flickers or is on part of the time, the problem is not likely to be the circuit, but the bulb itself. Replacement bulb should be a NE-51H or B2A high intensity neon. If they are not available locally, replacements can be ordered from us. To remove the strobe bulb, push it straight in and turn it to the left and it will pop out.

STROBE LIGHT ON, TURNTABLE OPERATES, NO VOICE OR MUSIC:
Recheck your speaker hookup to be sure that all terminals are firmly connected, and not worn or corroded.

If this problem occurs while you are using only one speaker, if possible check the same speaker with another cord and the same cord with another speaker, to see if the problem is in the speaker, the cord, or the amplifier.

If this should occur while you are using two or more speakers with a series "Y" connector, remove the "Y" connector and check each speaker and cord individually by plugging one speaker at a time directly into the amplifier. This will determine if the problem is in one of the speakers, one of the cords, the "Y" connector, or in the amplifier itself. In a series hookup, if one speaker or one cord has a bad connection, you will get no sound at all from the other speakers. By eliminating a faulty component from a series hookup, the rest of the system may be reconnected and will operate properly.

If your cords, speakers, and "Y" connectors all check out OK, the problem is in the amplifier. If you do these tests before calling us, we can identify and correct your problem much more quickly.

CIRCUIT BREAKER OPENS:
If the breaker should trip, wait a moment, press in on the reset button on the rear pannel. Normal operation should be restored. If the breaker again trips almost immediately, shut off the amplifier and do not attempt to use it until the cause of the problem has been determined. Un-plug the system and call us for service.

MUSIC ONLY--NO VOICE:
Try the other microphone input. If possible, try another microphone and another mic cord before notifying us.

VOICE ONLY--NO MUSIC:
CHANGE NEEDLES. If possible, check the phono channel by connecting a tape recorder to the MONITOR MUSIC jack to see if you can play a tape through the amplifier. This will determine whether the problem is in the pickup arm or in the amplifier.

DISTORTION:
Check to see if both music and voice are distorted. If music only, change needles. If voice only, try both mic holes; try a different microphone. If both voice and music are distorted, check if possible with another speaker. If using two speakers check to see if both are distorting.

SPEAKER DEAD OR INTERMITTENT:
Recheck all speaker connections. Switch cords and speakers to see if the fault is in the speaker or in the cord.

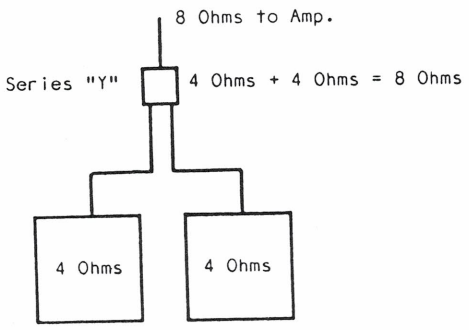
AMPLIFIER GOES DEAD:
Check to see if the power switch is on. If it is check the AC hookup and source of power. IF USING MORE THAN TWO SPEAKERS, MAKE SURE THAT "Y" CONNECTORS ARE IN USE AND PROPERLY CONNECTED. MAKE SURE THAT NO TAPE RECORDER IS CONNECTED TO ANY SPEAKER OR SPEAKER SOCKET. If the amplifier is hot, wait until it cools before restarting it, with no speakers connected.

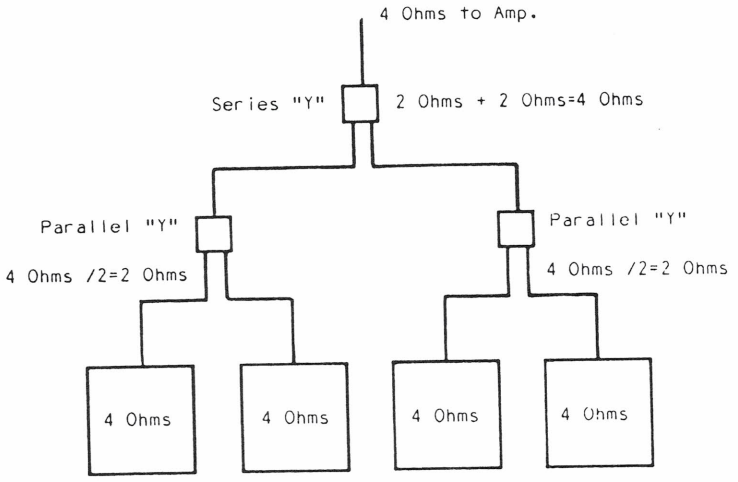
REMOVING THE AMPLIFIER FROM THE CASE

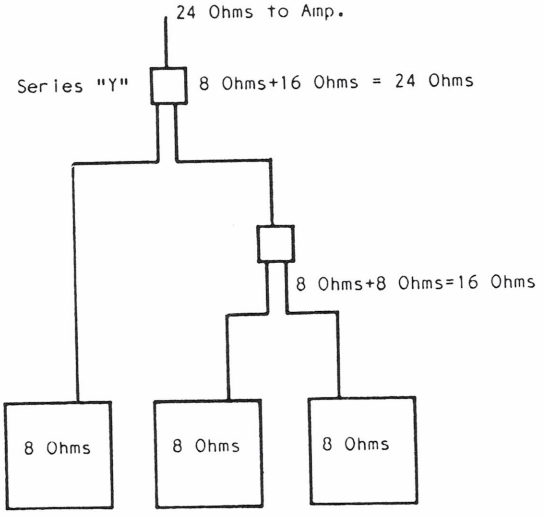
Slide a screwdriver under the chrome handle cover and snap it off, exposing the two bolts which hold the handle in place. Remove these bolts. On the opposite side of the unit, locate the two rubber feet. Remove the bolts that hold these feet in place.

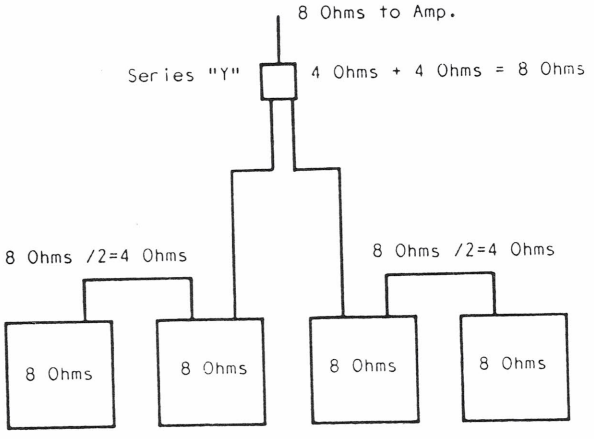
Make sure the tone arm is locked in it's clip. Lift out the platter, and set it aside. Slide the chassis out of the case.

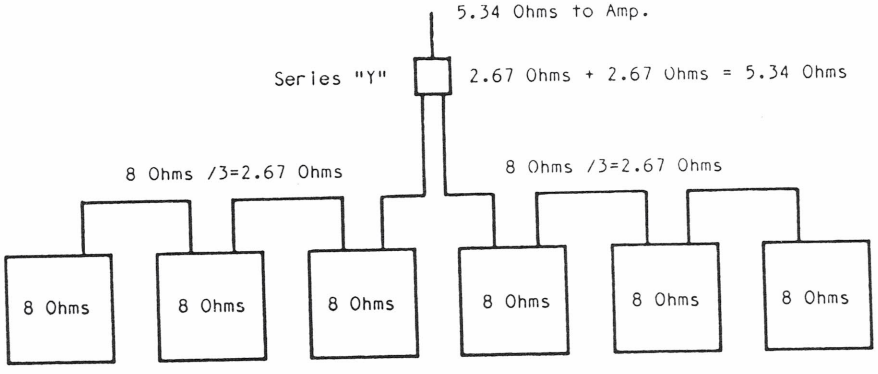
MULTIPLE SPEAKER HOOKUP DIAGRAMS

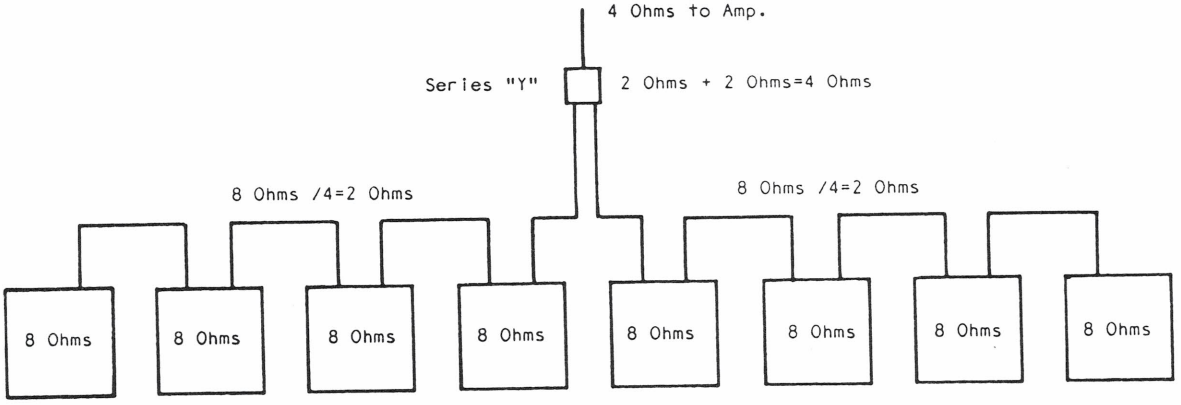












MICRO-75C SCHEMATIC