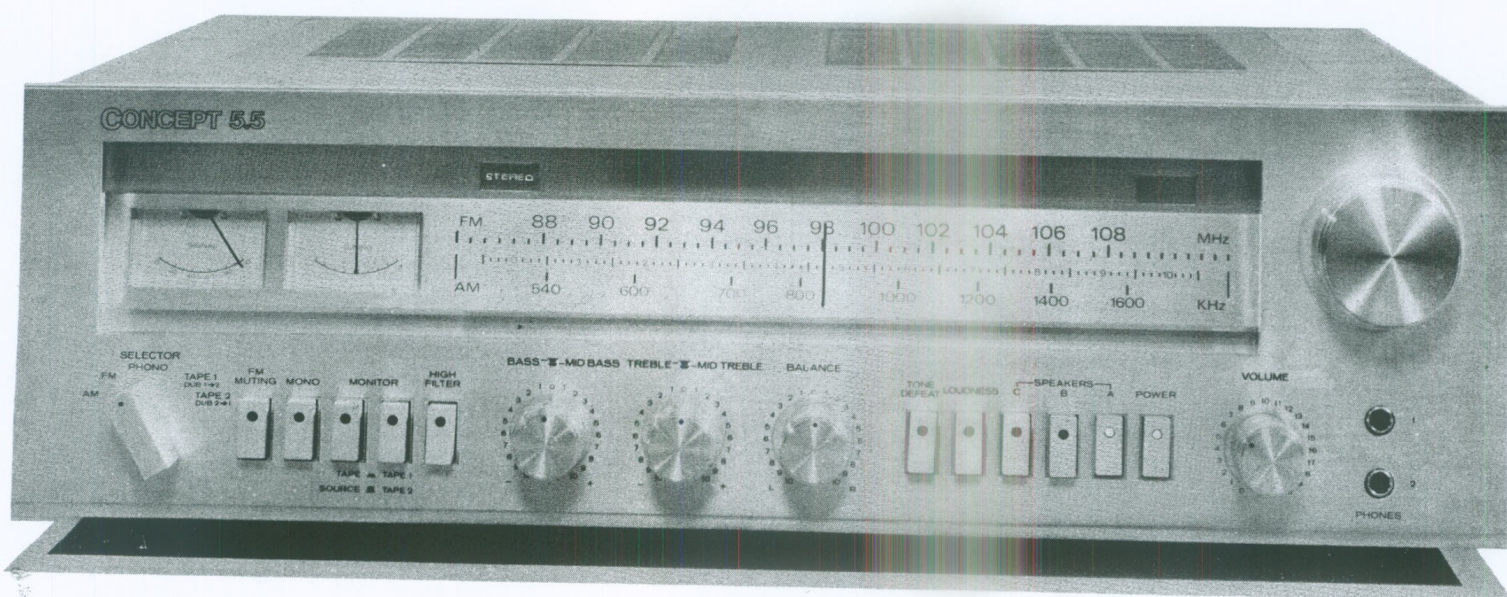


# CONCEPT

# 5.5

## Owners Manual



# Introduction

Thank you for choosing a Concept receiver. We think you'll most appreciate this product if you understand it in the context of its design philosophy. Take a few minutes and read this manual before you set up the receiver; it'll save you a lot of time, and will help you get the full potential from the Concept.

The Concept 5.5 is the result of a concentrated effort to design a line of stereo receivers without compromise. Every detail, from the action of the controls to the surface area of the internal heat sinks, has been carefully thought out and crafted by a distinguished international team of designers and production engineers. A laboratory standard of performance is augmented by bold visual definition. The final product is a finely-crafted instrument that will satisfy the most discerning audiophile.

A myriad of design innovations make the Concept 5.5 as easy to use as to listen to. Most of the binary functions are controlled by newly engineered push-buttons for maximum operational simplicity. The buttons themselves use light-emitting diodes to provide positive visual indication; the tape monitor buttons glow red when depressed, while all others glow green.

The Concept 5.5 volume and tone controls have multiple detents to allow precise adjustments that are easily repeatable. A unique four-range tone control system offers a new level of control over the frequency response, so you can get the best possible sound in any environment.

A sophisticated tuner section will match the performance of the finest separate tuners. Effective application is made of a 4-gang tuning assembly, full Quadrature detector, hand-picked filter elements and the latest Phase-Lock Loop circuitry. Tuning itself is unusually smooth, due in part to the massive internal flywheel and bearing assembly. Exact tuning is aided by a pair of calibrated meters and a stereo indicator light.

The hallmark of the Concept 5.5 is a standard of accuracy unmarred by significant audible or measurable distortion. This has been achieved by selecting only premium-quality parts and operating them far below their rated capabilities. A deliberate benefit of this design criterion is a dramatic decrease of breakdown due to parts failure.

Surely the most ambitious way to create a product, but consistent with making the Concept 5.5 receiver the ultimate synthesis of the technical, the visual, and the tactile.

## Unpacking

Save the shipping carton and all packing materials. They'll assure the receiver's safety should you ever move or ship the unit.

## Placement

You should, of course, place your receiver where it's most convenient. However, keep it away from direct sunlight or any other heat source, and don't block the vents on the underside of the unit. CAUTION: To prevent fire and avoid shock hazard, do not expose the receiver to rain or moisture.

Make sure the power is switched *off* before making any connections.

# Connections

## Speakers

The Concept 5.5 receiver uses spring-loaded push terminals for all speaker connections; these are not only easier to use than the standard screw terminals, they greatly reduce the possibility of a stray wire strand short-circuiting the receiver.

To connect the speaker wires to the receiver, first strip off *only* about ¼-inch of insulation and twist the strands tightly together. Press in on the movable part of the terminal and insert the bare wire in the center hole. Release the terminal.

Connect your main set of speakers to the "A" row of terminals. The right-hand speaker should be connected to the two "R" terminals, the left speaker to the "L" pair. You may connect your extension speakers to those marked "B" and "C." CAUTION: If you connect more than one pair of speakers, make sure they're all rated at 8 ohms or higher. Do not connect more than one pair of 4-ohm speakers. The Concept 5.5 is designed so that only two pairs (any two) may actually be played at one time, to prevent possible damage to the amplifier. Depressing a third speaker button will disconnect all speakers and turn off the green indicators.

CAUTION: Never make any speaker connections that join two red terminals. Rather than increasing output power, this will cause serious damage to the amplifier. If you are operating only one loudspeaker, connect it to either "L" or "R," but not both.

You should be certain your speakers are connected in phase, so that they'll work in unison rather than opposition. The positive terminal on the speaker (usually marked + or 8 ohms) should be connected to the *red* receiver terminal, the negative speaker terminal (marked - or 0) to the *black* receiver terminal. For a simple phase test, see the Useful Information section of this manual.

## Components

Connect your record player to the PHONO MAG receiver inputs. To realize the full potential of the Concept receiver, use only a high-quality magnetic cartridge in your record player. *Never* use a ceramic cartridge. The left channel lead from the turntable should be firmly plugged in to the upper jack, the right channel lead to the lower. If the record player has a ground wire (most do), it should be connected to the GND post on the receiver. Grounding the record player to the receiver chassis prevents hum.

The leads from the record player should be kept away from any AC line cords. This is another precaution against unwanted hum interference. To avoid loss of high frequencies, use only the 3- or 4-foot leads supplied with the record player.

A tape recorder may be connected to either the TAPE(MON)1 or the TAPE(MON)2 jacks on the Concept 5.5. (You can connect two tape recorders, of course.) The *output* leads from the tape deck go to the IN jacks on the receiver, and the *input* leads (often called "line in") to the tape recorder should be plugged into the OUT jacks on the receiver.

Either set of TAPE jacks may also be used to connect an auxiliary component, such as a TV sound adapter. The leads from that component should go to the IN jacks.

Components such as equalizers or noise reduction units should be connected between the PRE OUT and MAIN IN jacks. First remove (and save) the pins connecting the two. The PRE OUT jacks should be connected to the equalizer inputs, and the MAIN IN jacks to the equalizer outputs. Other components which may be connected to these jacks include electronic crossovers and many 4-channel adapters. Do not remove the connecting pins unless you are hooking up a component to the

PRE OUT and MAIN IN jacks, or while power is on.

There are two AC convenience outlets on the Concept 5.5. One of them is SWITCHED, and is live only when the Concept's power switch is on. Plug components such as equalizers or adapters into the SWITCHED outlet. The other outlet is UNSWITCHED and is live whenever the Concept is plugged in. A record player or tape deck should only be plugged into this outlet; these components often contain mechanical parts that can be damaged if their AC power is shut off during play.

Maximum capacity of each AC convenience outlet is 100 watts.

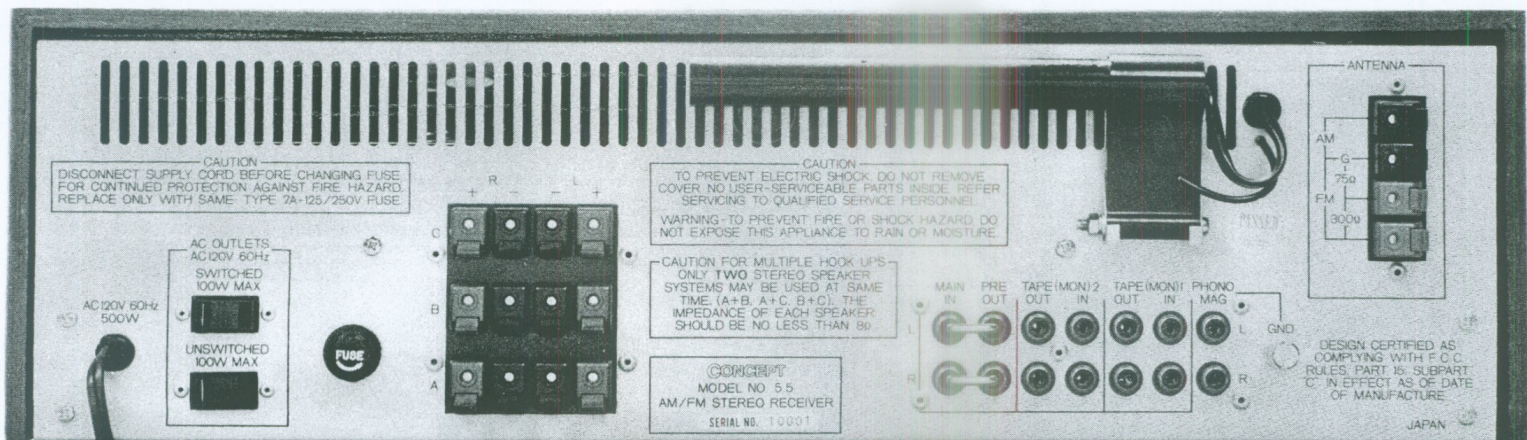
## Antenna

An external antenna is required for FM reception. A T-shaped FM antenna, called a folded dipole, is included with the Concept 5.5. It should be connected to the blue (300 ohm) antenna terminals. For more antenna information, see the Useful Information section.

An AM antenna is attached to the back panel. Do not use it as a handle; it is not designed to hold the weight of the receiver. To function effectively, it should be angled away from the back of the receiver.

If you want to listen to distant AM stations, a single piece of insulated wire can be used as an AM antenna. For best results, it should be strung outdoors between two insulators, and be placed as high as possible. The outdoor portion of the wire should be 25 to 75 feet long. Connect the outdoor AM antenna to the AM terminal. For safety and also for less interference, connect the antenna ground terminal to an earth ground (such as a cold water pipe) whenever you use an outdoor AM antenna.

After you've made all the connections, you're ready to plug the power cord into a wall socket and begin operation.



# Operation

First, be sure the receiver is plugged in and the volume control is turned fully counterclockwise.

Use the SELECTOR knob to choose the program source, then depress the POWER button. The indicator in the button should glow green. (You'll hear a slight click a few seconds after you turn on the power; it's the Concept 5.5's protective relay and the click is normal.) Depress the appropriate SPEAKER buttons. Then slowly turn the volume control clockwise until the sound reaches the desired level. The volume control is precisely calibrated with 40 detents; each step is a 1/2 dB increase in sound level.

## Tuning

The Concept 5.5 has a pair of tuning meters to aid in getting the best possible reception. Both meters operate for FM tuning. The SIGNAL meter indicates signal strength and may be used to help find correct antenna position. The TUNING meter indicates when you're tuned to the center of the FM channel, where the sound is clearest.

The large tuning knob is attached to a heavy internal flywheel and operates freely to further help you in making fine adjustments.

The STEREO light glows when you tune to an FM station broadcasting in stereo. If the reception is noisy in stereo and antenna adjustments don't help, depressing the MONO button may make a station more listenable.

To cut out the loud hiss between FM stations, depress the FM MUTING button when tuning. A reed relay circuit allows only wanted signal, without the swishing and thumping noises associated with ordinary muting circuits.

For AM, only the SIGNAL meter operates (there is no real center of channel in an AM signal, so the meter is unnecessary). Tune for the highest possible meter reading.

## Using the Controls

The Concept 5.5 offers unusually complete control flexibility. Judicious use of the controls will help you realize the full potential of your other components and the listening environment.

## Tone Controls

A uniquely flexible tone control array is utilized on the Concept 5.5. The bass and treble knobs are ganged for ease of use; the outer sections, called mid-bass and mid-treble, effect the typical turnover for boost or cut; the inner sections, called bass and treble, permit fine adjustment at extreme bass and treble frequencies. (See the Specifications for further information on tone control action.) The outer tone controls have 21 positions of 1 dB change; the inner controls have 10 positions of 2 dB change.

Don't hesitate to use the tone controls. They'll let you add depth to many recordings, or compensate for your listening room acoustics. You can use the four tone controls as an equalizer, and make precise adjustments to the sound at useful points in the frequency spectrum. Add just the right amount of bass, or bring the sound a little closer. The extreme bass control is even more effective than a standard rumble filter, and the extreme treble control may enhance definition and spaciousness.

Because these controls operate at extremes of the frequency spectrum, they have an extremely subtle effect on the sound. The full effect may be apparent only through wide-range loudspeakers, and even then only after extended listening. Use prudence in applying these controls, as the effect is cumulative. Extreme clockwise rotation of both the inner and outer sections may cause the amplifier to overload, but will more likely cause

speaker damage; be careful when rotating both controls.

The Concept 5.5 has a TONE DEFEAT switch which removes the controls from the circuit; it restores the amplifier to laboratory-flat response and allows for instant comparisons of the effect of the controls.

The LOUDNESS button adds a precise amount of bass to restore a natural frequency balance when listening at low levels. Human ears don't perceive the frequency extremes very well at low volumes, and the loudness contour circuit compensates for that.

The HIGH FILTER rolls off the high frequencies. It can be used to reduce tape hiss, record surface noise, and particularly excess noise in FM reception. It also cuts out any musical material at those frequencies; thus you should use it sparingly.

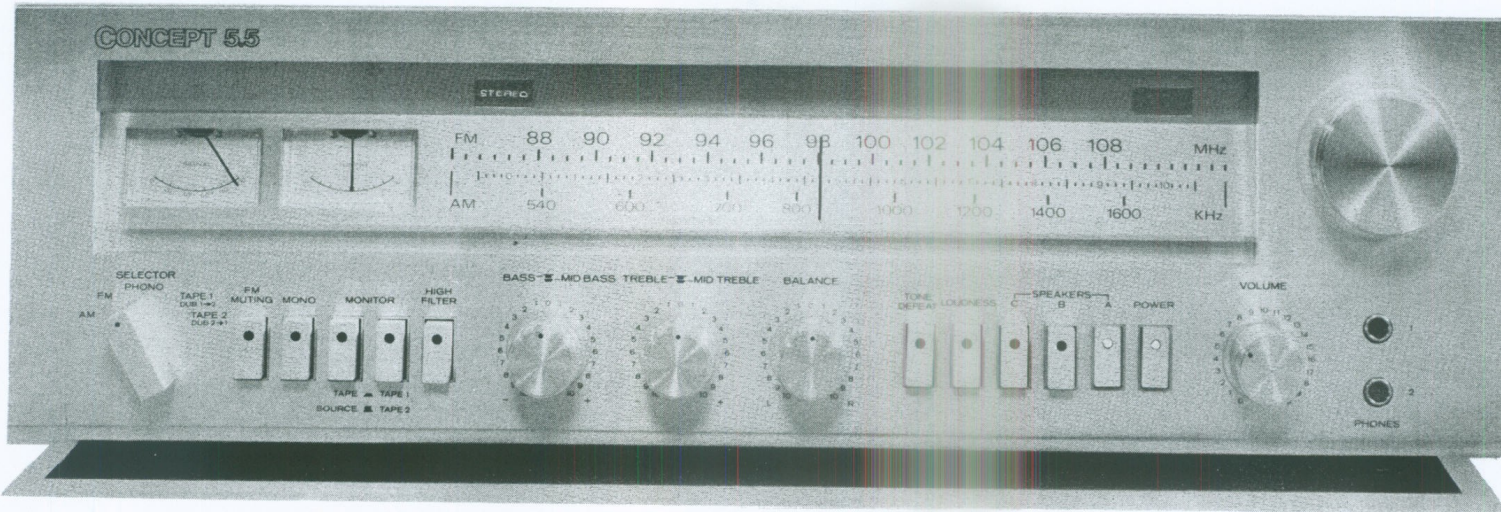
The compensations provided by the loudness and high filter are approximations for casual listening. Use of the 4-array tone controls in lieu of the loudness and high filter may offer more accurate compensation for some program material.

Use the BALANCE control to shift the stereo image from left to right, to keep the image centered when the source is too strong in one channel, or when your listening position favors one speaker.

## Using the Tape Monitors

To just listen to a tape recording, turn the SELECTOR to Tape 1 or Tape 2, depending on which the deck is connected to.

To record on a tape deck, turn the SELECTOR to the source you're using. To listen to the tape deck while recording, use the two-button MONITOR. The left-hand button selects Tape or Source; the right-hand button selects Tape 1 or Tape 2.



# Useful Information

If you're recording onto a machine with a separate playback head (a three-head deck), the MONITOR lets you make instant comparisons between the recording and the original source. To monitor a recording, first use the right-hand button to select the deck; depress it to engage a deck connected to Tape 1, and leave it out if the deck is connected to Tape 2. Then use the left-hand button to compare the tape and the source.

Both MONITOR buttons glow red when depressed.

To dub a recording from Tape 1 to Tape 2, turn the SELECTOR to Tape 1 (subtitled DUB 1 + 2). To dub from Tape 2 to Tape 1, turn the SELECTOR to Tape 2 (subtitled DUB 2 + 1). The MONITOR buttons work in the same manner as for any other source. For instance, if you're dubbing from tape deck #1 to #2, leave the Tape 1/Tape 2 button out; depress the Tape/Source button to hear the new recording on deck 2, and leave it out to hear the original source, deck 1.

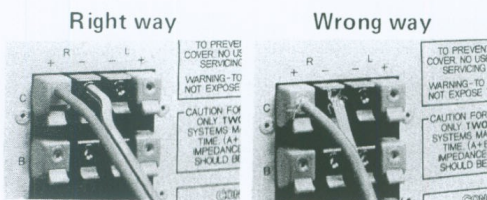
## Equalizing Tape Recordings

It is sometimes desirable to equalize a recording source *before* the signal is put on tape. The Concept's tone controls can be used as a very effective equalizer. To use them, connect the tape recorder's inputs to the PRE OUT jacks on the rear panel. The tone controls will then affect the signal going to the deck. But remember that the volume and balance controls will also affect the signal, so do not change them while making the recording.

Also, do not use the tape monitor circuits while making an equalized recording, as this will cause a howling feedback sound. Monitor with headphones directly from the deck itself.

## Wire Stripping

When making speaker connections, strip off only ¼-inch of insulation. Stripping more than that will leave bare wire exposed and could cause a damaging short circuit.



## Headphones

For private listening, you can plug two sets of headphones into the Concept front panel. Any headphones of 8 ohms impedance or higher are suitable.

## FM Antenna

The T-shaped folded dipole antenna will give you adequate reception in most metropolitan areas. You can get the best possible indoor reception by turning the "T" portion of the dipole to face the incoming signal; that is, turn it toward the transmitter.

Your Concept dealer can advise you if your situation seems to require an outdoor antenna. Your existing TV antenna may be adequate, but you will need a two-set (or more) coupler for multiple connections.

Sometimes fuzzy stereo reception is the result of a phenomenon called *multipath*. This is much the same as "ghosts" on television; it's caused by the FM signal bouncing off of buildings or hills so that the reflected signals reach your antenna at slightly different times. The advanced Concept 5.5 tuner circuits minimize this interference, and experimenting with antenna position will generally eliminate it.

For cable reception, 75-ohm coaxial cable may be connected directly to the 75-ohm antenna terminals. The center portion of the cable goes to the 75 terminal; the shield goes to the antenna ground.

## Speaker Phasing:

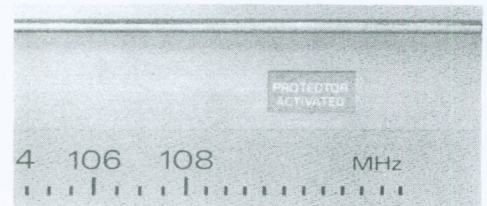
You can double-check your speaker phasing with a simple listening test. First move the speakers close to each other, and facing the listening area. With a stereo record playing, slightly advance the bass control (the outer section) on the receiver, and switch between stereo and mono. If there seems to be less bass in the mono position, turn off the receiver, reverse the leads at one speaker and

repeat the test. When the quantity of bass seems similar in stereo *and* mono, the speakers are phased correctly.

## Protection Circuits:

The Concept 5.5 receiver has multiple sophisticated devices to protect against damage from short circuits and overload conditions. Should the speaker wires touch and cause a short circuit, the protection circuit shuts off the receiver and the PROTECTOR ACTIVATED light comes on. If this happens, turn off the POWER button and check all speaker connections. Wait 15 seconds before turning the power back on.

The protection circuit also activates if the receiver is driven beyond its capacity (for instance, if you tried to drive two sets of 4-ohm speakers simultaneously).



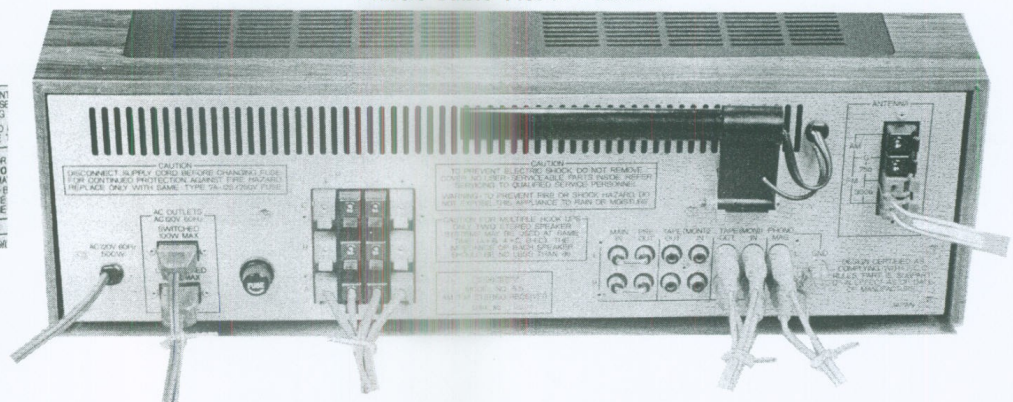
The Concept 5.5 also has a speaker relay that prevents the power surges from reaching the speakers when the receiver is switched on. You'll hear a slight click several seconds after the receiver is turned on. It is normal that no sound will come from the speakers during this interval.

The receiver has a 125-250V 7-amp AC line fuse. Should this blow out, replace it only with a fuse of the same rating. Generally if the fuse blows, it's an indication of malfunction and you should contact your Concept dealer immediately.

**REMINDER:** Never make any speaker connections that join two red terminals. Rather than increasing output power, this will cause serious damage to the amplifier.

To assist you in making neat and professional-looking connections, use the plastic cable ties included with this manual. Loop them around the wires with the beaded edge facing outward, pull tight and clip off the unused portion.

Plastic Cable Ties in Position



# In Case of Difficulty

If there appears to be a malfunction of the unit, turn it off and *check all connections*. Frequently the cause of the trouble is a loose connection rather than any receiver malfunction.

There are a number of noises which may occur from time to time and interfere with your listening. Usually these are caused by external conditions; the following section lists the most common noises and their most likely causes.

## When Listening to the Radio

**BUZZING**, continuous or intermittent, is often caused by fluorescent lights, or electric motors (blenders, for instance). These sources may also cause hum interference. The best solution is to remove the source; if this isn't possible, try a better antenna, ground the receiver properly, or try reversing the AC plug in its outlet.

**STATIC** on FM may be caused by interference from automobile or truck ignitions. This is likely to occur on weaker signals, and the best solution may be an outdoor antenna with shielded connecting cable. **HISS** on an FM stereo program, if excessive, may be caused by the stereo signal being too weak. Usually, pushing the **MONO** button will improve the signal. An outdoor antenna may be of help too. (Stereo signals are inherently noisier than mono, and don't maintain clarity as far from the transmitter.)

**HISS** on AM reception can be caused by interference from a strong station adjacent to the one being tuned, or by a TV set being operated in close proximity to the receiver. This interference is practically impossible to remove; you can try moving the TV set away from the receiver.

## When Playing Records

**HUM** or **BUZZ** can be caused by loose connections, poor grounding, or by AC line cords (particularly from fluorescent lamps) being too close to the shielded phono leads. Check your connections, ground the record player chassis to the receiver, move the offending cords. Severe hum in one channel is usually the result of faulty record player headshell contact or cartridge wiring.

**POOR TONE QUALITY** or **FUZZY SOUND** may result from a worn stylus or record, incorrectly mounted or dirty stylus. Check the stylus condition, the mounting, and the tracking force. Keep your records clean. (Your Concept dealer stocks a number of effective record-cleaning devices.) An artist's paint brush with the bristles clipped short makes an excellent stylus cleaner; you can moisten it with alcohol. Brush the stylus gently from back to front.

**HOWLING** and **RUMBLING** sounds may be caused by feedback, vibrations from the speakers actually transmitting back through the record player. Keep your turntable as far as possible from the speakers, and mount the turntable on as rigid a surface as you can.

## Warranty

Your Concept receiver is covered by a limited warranty against defects in materials and workmanship for a period of three years from the date of purchase. During that time, repairs will be made free of charge (except for shipping costs) when the unit is returned to a Concept dealer. Your original sales slip to validate the date of purchase will authorize service; no registration card is necessary.

This warranty becomes void if the receiver is repaired by personnel other than those authorized by Concept, or if the serial number has been defaced or removed. Charges for unauthorized service will not be reimbursed. Repairs due to alteration, misuse, accident, or neglect are not covered by this warranty. Concept assumes no liability for property damages of any sort which may result from the failure of this unit. Any warranties implied by law are limited to the duration of this expressed limited warranty.

# Specifications

## Power Amplifier Section\*

Continuous power output of 55 watts per channel minimum RMS, @ 8 ohms, from 20 Hz to 20,000 Hz with no more than 0.3% total harmonic distortion.

Frequency Response:

20 to 20,000 Hz  $\pm$  .5 dB

1V peak to peak rise time:

1.6  $\mu$ sec.

Total Harmonic Distortion:

typically less than 0.1%

IM distortion (50 Hz : 7 kHz = 4:1):

typically less than 0.1%

Hum and noise, weighted:

90 dB

Input characteristic:

950 mV, Hi Z

Outputs:

Speaker: A, B, C or any 2 together

Headphone: 2 Lo Z

\*Measured in accordance with the Federal Trade Commission's rule on power output claims.

## Preamp Section:

Input Sensitivity

Phono 1.9 mV

Tape 1 160 mV

Tape 2 160 mV

Phono Overload

120 mV

Output Level

Tape 1 750 mV

Tape 2 750 mV

Pre Out 950 mV

Phono Frequency Response

30 Hz to 15,000 Hz,  $\pm$  .2 dB to RIAA curve

Tone Controls

Bass  $\pm$  6 dB @ 50 Hz in  
2 dB steps

Mid Bass  $\pm$  10 dB @ 100 Hz in  
1 dB steps

Treble  $\pm$  6 dB @ 20,000 Hz  
in 2 dB steps

Mid Treble  $\pm$  10 dB @ 10,000 Hz  
in 1 dB steps

Loudness Contour @ -30 dB

+8 dB @ 100 Hz

High Filter

-10 dB @ 7,500 Hz, 6 dB/octave

Volume Control Balance

within .3 dB tracking

Signal-to-Noise Ratio

Phono 75 dB

Tape 1 85 dB

Tape 2 85 dB

Main In 90 dB

Residual Hum and Noise Content

.8 mV

Crosstalk @ 1 kHz

60 dB

## FM Tuner Section\*\*

Sensitivity

1.6  $\mu$ V equivalent to 9.3 dBf/300  $\Omega$

50 dB Quieting Sensitivity

3.5  $\mu$ V equivalent to 11.2

dBf/300  $\Omega$

Signal-to-Noise Ratio @ 65 dBf

72 dB

Stereo Separation @ 1 kHz

46 dB

Distortion @ 65 dBf

mono 0.1%

stereo 0.15%

Frequency Response

30 Hz to 15,000 Hz  $\pm$  .5 dB

Capture Ratio

1.0 dB

Alternate Channel Selectivity

85 dB

Spurious Response Ratio

88 dB

Image Response Ratio

90 dB

IF Response Ratio

95 dB

Muting Threshold

10  $\mu$ V

## AM Tuner Section

IHF Sensitivity

175  $\mu$ V/m

Image Response Ratio

50 dB

Signal-to-Noise Ratio

40 dB

Antenna

movable ferrite loopstick

\*\*Measured in accordance with the latest IHF standard

## General

AC outlets

1 switched, 1 unswitched

Dimensions

18-7/8" (47.9 cm) W

6" (15.2 cm) H

13 3/4" (34.9 cm) D

Weight

35 lbs. (15.9 kg)

Enclosure:

Rosewood pattern vinyl, bonded as high pressure laminate to multiple-ply wood.

Front panel - 6 mm solid aluminum extrusion

120V AC only UL Approved

Thousands of hours of research, lab testing, field-testing and re-evaluating have evolved into your Concept 5.5. Needless to say, we think it will be one of the finest-performing, most convenient and best-looking receivers available for quite some time. No doubt there will be copies, but you own an original. We'd be grateful to know that this product creates the satisfaction for which it was intended. We urge you to write with your comments. Also, we've enclosed a questionnaire and would appreciate its completion and return.

Concept

1601 W. Glenlake Ave.

Itasca, Illinois 60143