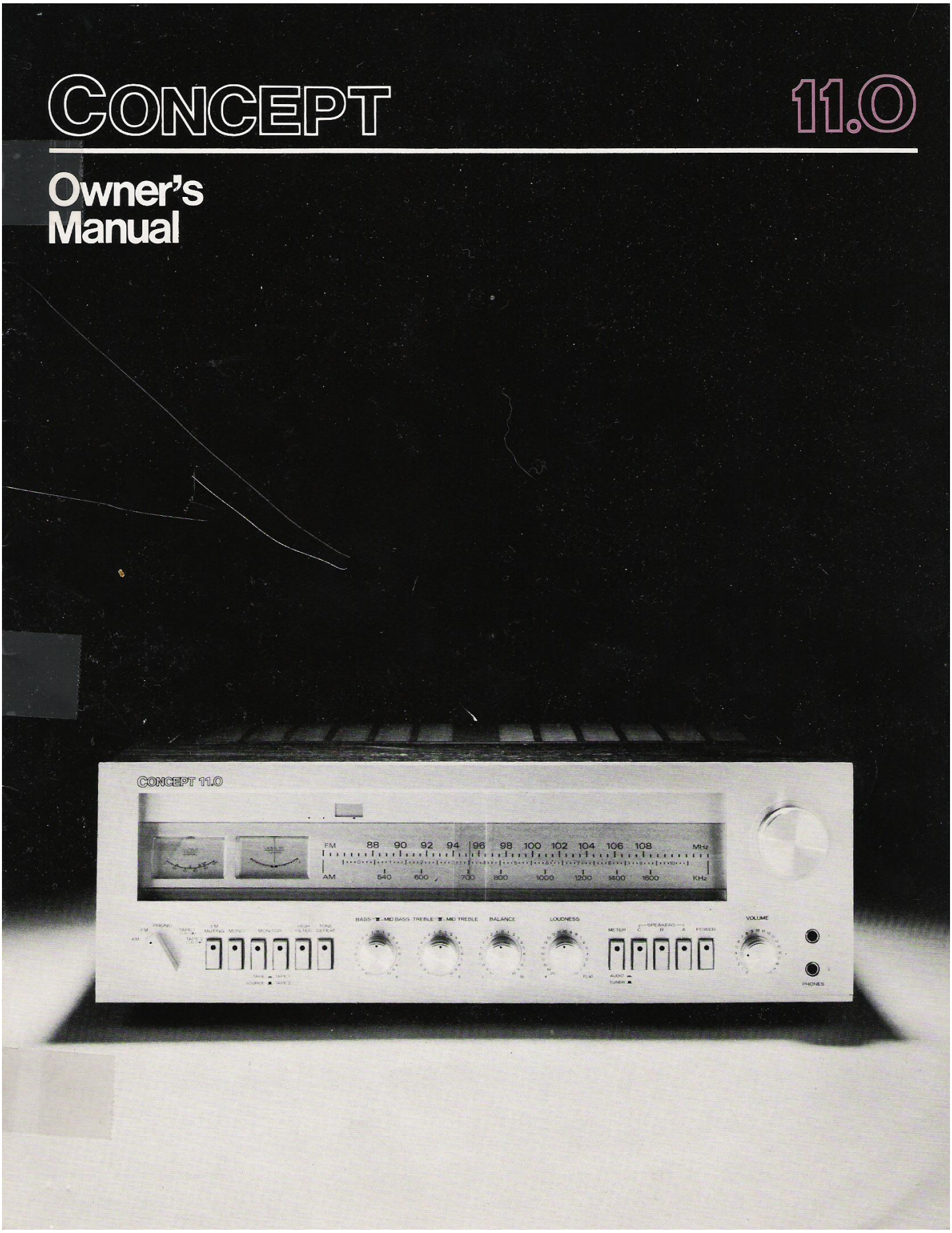
CONCEPT 11.0

Owner's Manual



Introduction

A Note On High-Powered Receivers

The extremely high power output capability of your Concept receiver will enable you to hear undistorted musical peaks, and bring fresh clarity and detail to your music. There are, however, a few things you should keep in mind regarding the high power capacity and what it can do.

Concept's amplifier is direct-coupled, with no capacitors or filters between the output transistors and the speakers. Any audio input is passed directly to the speakers, no matter how low the frequency. Thus, any sonic deficiencies in your other components will become very apparent. For this reason, you should use only the highest quality associated equipment. Inferior turntables can cause special problems; they're likely to have excessive rumble, and the low rumble frequencies have the potential to damage many speakers.

You should also be careful when handling your record player. Dropping the tonearm on the record, or flicking dust from the stylus, with the volume up, can send a power surge that may damage your woofer. It's good practice to turn the volume down whenever you're changing a record.

Check the power-handling capacity of your speakers; if it's modest, you might want to fuse your speakers. Your Concept dealer can advise you on that. Prolonged operation at very high volume levels can also cause excessive heat to build up in the voice coils of the speakers, shortening their lifespan. This is especially true of the relatively low-efficiency acoustic suspension bookshelf-type speakers. Sonically, they benefit most from the high power, but prolonged overdriving can lead to premature speaker failure.

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 11.0 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 11.0 as easy to use as to listen to. Most of the binary functions are controlled by newly engineered pushbuttons for maximum operational simplicity. The buttons themselves use light-emitting diodes to provide positive visual indication of the function.

The Concept 11.0 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. The innovative loudness contour is adjustable, so you get the precise amount of loudness compensation necessary for your speakers at any volume.

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 11.0 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 this is the most ambitious way to create a product, but consistent with making the Concept 11.0 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.

Record the serial number of Concept 11.0 in the space provided here. The number may be found on the rear panel of you receiver.

Serial Number:

Date of Purchase:

Placement

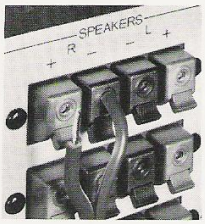
You should, of course, place your receiver where it's most convenient. However, keep it away from direct sunlight or any other heat source, and don't block the vents on the underside of the unit. CAUTION: To prevent fire and avoid shock hazard, do not expose the receiver to rain or moisture. Also, as the 11.0 is very heavy, you should be sure it's on a secure shelf.

Connections

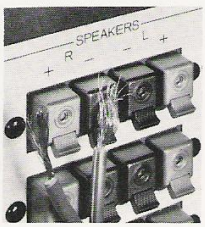
Wire Stripping

Strip off *only* ¼-inch of insulation. Stripping more than that will leave bare wire exposed and could cause a damaging short circuit.

Right Way



Wrong Way



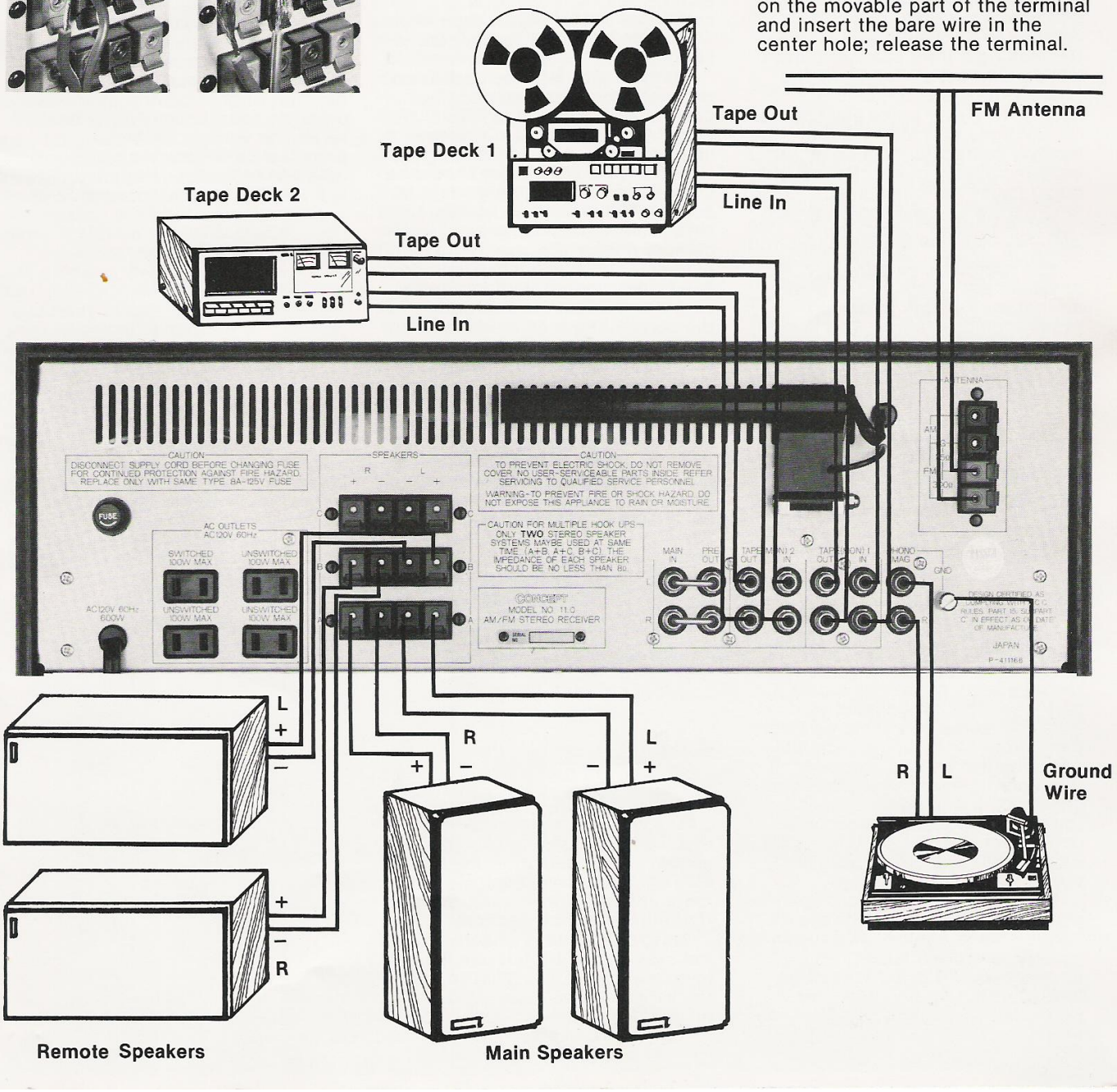
Be sure the power is switched *off* before you make *any* connections.

You should also be sure your speaker wire is of sufficiently heavy gauge. We recommend 18-gauge lamp cord ("zip cord"). If you need more than 50 feet to reach a speaker, you should use 16-gauge cord. Wire that is too thin will impair power transfer and high frequency response; heavier wire offers less electrical resistance and is a more efficient conductor.

Speakers

The Concept 11.0 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* 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.



Connections

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 rows 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 11.0 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 receiver terminals. *This does not increase output power.* Rather, it could 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 connected to the *red* receiver terminal; the negative speaker terminal (marked – or 0) should be connected 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 nearly always prevents hum.

The leads from the record player should be kept away from any AC 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.

If you have a tape recorder, connect it to the TAPE (MON) 1 jacks on the Concept 11.0. The *output* leads from the tape deck go to the IN pair of jacks, and the input jacks on the deck (often labeled "line in") should be connected to the OUT pair of jacks on the Concept.

A second tape recorder may be connected to the TAPE (MON) 2 jacks. Hookup precedure is identical.

Either set of TAPE jacks may also be used to connect a component other than a tape deck. The leads from that component should go to the IN jacks.

Components such as equalizers or noise reduction units can 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 digital time delay units. Do not remove the connecting pins unless you are hooking up a component to the PRE OUT and MAIN IN jacks, and *do not* touch or remove the pins while power is on.

There are four AC convenience outlets on the Concept 11.0. One of them is SWITCHED, and is live only when Concept's power switch is on. Plug components such as equalizers or adaptors into the SWITCHED outlet. The other 3 outlets are UNSWITCHED and are live whenever the Concept is plugged in. A record player or tape deck should be plugged into these outlets only; these components often contain mechanical parts that can be damaged if their AC power is shut off during play.

Antenna

An external antenna is required for FM reception. A T-shaped FM antenna, called a folded dipole, is included with the Concept 11.0. 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. It is hinged; leave enough space so that it can be swung away from the receiver

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

First, be sure the receiver is plugged in, the VOLUME control is turned fully counterclockwise, and the LOUDNESS control fully clockwise.

Use the SELECTOR knob to choose the program source, then depress the POWER button. The indicator in the button will initially glow red, then change to green. (It takes about 5 seconds for the Concept's main protection relay to activate; the slight click you'll hear is normal.) Depress the appropriate SPEAKER button(s). 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 approximately a ½-dB increase in sound level.

Operation

Tuning

The Concept 11.0 has a pair of tuning meters to aid in getting the best possible reception. (The meters alternately function as audio power level meters; for tuning, make sure the METER button is at the "out" position.) Both meters operate for FM tuning. The SIGNAL meter indicates signal strength, and the TUNING meter indicates when you've tuned to the center of the FM channel, where distortion is minimized.

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. The LED in the FM MUTING button glows red to indicate that the circuit is blocking off-station FM noise; when you reach a station with an acceptable signal, the LED changes to green. (The LED will glow red when the FM MUTING button is depressed and receiver is switched to a function other than FM.)

Using The Controls

The Concept 11.0 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.

Loudness Control

The Concept 11.0's LOUDNESS control is unique. "Loudness" differs from "volume" in that volume is quantifiable—it can be measured on an absolute scale. Loudness is the *perceived* volume level rather than the *actual* level. Human ears don't perceive the frequency extremes as well at low volume levels; bass and treble seem to disappear. A "loudness" contour circuit compensates for that. Concept's special design is adjustable in 22 1-dB increments, and is far more useful than conventional on-off circuits, which merely mimic tone control action.

When the VOLUME control is set for higher than average listening levels, you'll want the LOUDNESS control set at "flat", as your ears don't require any special frequency compensation. To then reduce the listening level, use the LOUDNESS control instead of the volume control. Turning the LOUDNESS control counterclockwise will lower the level without sacrificing perceived frequency balance; you'll still hear necessary bass and treble.

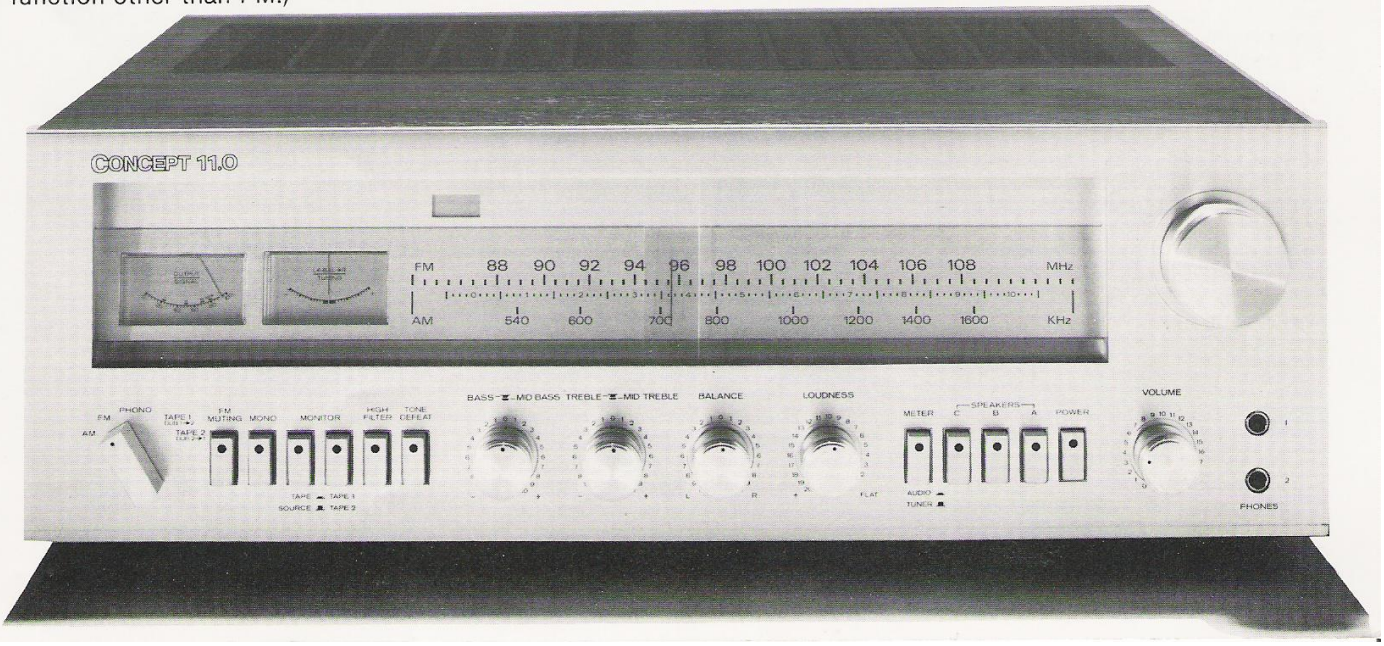
Because loudspeakers have different energy requirements and tonal characteristics, experimenting with the relative position of the LOUDNESS and VOLUME controls will provide optimum reproduction for your room and preferences. There are 880 possible combinations of these controls.

WARNING: The immense power reserves of the 11.0 can damage many loudspeakers if full loudness compensation is used with very high volume settings. Use the loudness circuit to reduce listening levels, not to increase bass response at high volumes.

Tone Controls

A uniquely flexible tone control/equalizer array is utilized on the Concept 11.0. The bass and treble knobs are ganged for ease of use; the outer sections, called mid-bass and mid-treble, effect the typical turnover point 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 20 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



Operation

points in the frequency spectrum—add just the right amount of bass, or bring the sound a little closer.

Because these controls operate at *extremes* of the frequency spectrum, they have a very subtle effect on the sound. This full effect may be apparent only with well-recorded sources and only through wide-range loudspeakers, and even then only after extended listening. Use prudence in applying these controls, as the effect of each 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 11.0 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.

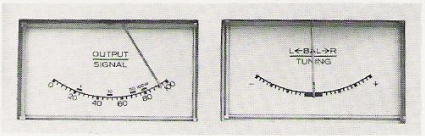
The HIGH FILTER gently rolls off the high frequencies. It can be used to reduce tape hiss, record surface noise, and particularly excess noise in FM reception. It also cuts out any musical material at those frequencies; thus you should use it sparingly.

The compensation provided by the high filter is a compromise for casual listening. Use of the 4-array tone control in lieu of the high filter offers more accurate compensation and preserves musical integrity.

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.

Meters

The meters on the Concept 11.0 serve as audio power meters as well as tuning meters. Their function is controlled by the METER (AUDIO-POWER) button. When the button is "in", the left



meter measures average power output in watts. The meter is calibrated for 8-ohm loads; if you're operating the Concept 11.0 into a pair of 4-ohm speakers (or two sets of 8-ohm speakers simultaneously), the actual output will be *twice* the meter reading. The meter will momentarily hold readings. The right meter measures relative channel balance. If one channel is putting out more power than the other, the output meter will register the higher of the two, and the balance meter will indicate which channel that is. The meters are useful in monitoring output so you can relate your listening levels to your loudspeakers' requirements and power handling capability.

Tape Playback And Recording

The TAPE (MON) 1 jacks on the rear panel correspond to the "Tape 1" controls on the front panel. A deck connected to those jacks will be referred to as "deck 1" in the subsequent instructions. Similarly, the TAPE (MON) 2 jacks correspond to the "Tape 2" controls, and a deck connected there will be called "deck 2."

To *listen* to deck 1: First depress the right-hand MONITOR button (to the TAPE 1 position). The red LED will now illuminate. Now depress the left-hand MONITOR button (to the TAPE position). Its LED will also illuminate.

To *listen* to deck 2: The right-hand MONITOR button should be in the "out" position (the LED will be off). Simply depress the left-hand MONITOR button (the LED will be red).

To *record:* Make sure your deck is in the record mode. (Refer to the tape deck instruction manual for proper record level settings.) Turn the SELECTOR to the program source you wish to record, e.g. to FM if you want to tape an FM radio program to Phono for taping one of your records.

Monitoring: Tape recorders with a separate playback head (three-head decks) allow you to make an instant comparison between the recording and the original source. The is comparison is known as *monitoring.* The monitoring controls differ from those found on other receivers; Concept's operation is more professional.

To monitor a recording, simply follow the above instructions for listening to a tape deck. Again, the right-hand MONITOR button selects deck 1 or deck 2; the left-hand MONITOR button lets you make an instant comparison between the source and the tape recording. This way you can check on the quality of your recording.

The Concept's flexible tape monitor arrangement also permits *dubbing,* i.e. copying tapes. To dub a recording *from* deck 1 *onto* deck 2, turn the SELECTOR to Tape 1. To monitor that recording, follow the procedure for listening to deck 2.

To dub a recording from deck 2 onto deck 1, turn the SELECTOR to Tape 2. To monitor, follow the procedure for listening to deck 1.

Concept does not offer a "dub-through" feature, i.e. a circuit that allows you to dub between decks while listening to yet another source. Concept believes that the apparent convenience offered by such a feature is misleading; if you do not check your recordings, you cannot know their quality. Moreover, if something malfunctions, you wouldn't know until you played the tape. Professional results can be achieved only by professional methods, and in tape recording this means listening to either the recording source or the tape itself.

CAUTION: If you are recording onto deck 1, *never* set the SELECTOR to Tape 1. If you are recording onto deck 2, *never* set the SELECTOR to Tape 2. This would cause a howling feedback sound to build up, and could damage your speakers in a few seconds. As a matter of good practice, use only the MONITOR buttons to listen or monitor.

Equalizing Tape Recordings

While it is sometimes tempting to equalize a recording source *before* the signal is put on tape, we recommend that you do the equalization only on playback. If for some reason you feel it is necessary to equalize the recording, the following instructions tell you how. However, take note of the precautions.

You can connect your tape deck's inputs to the PRE OUT jacks on the Concept's rear panel. Concept's tone controls will then affect the recording, and they make a very effective equalizer. BUT: The volume control and loud-

Useful Information

ness contour *also* affect the recording, so once you've started recording, don't touch them. (Set the loudness control to "flat"; add loudness compensation only on playback.) NOTE: Do not use the tape monitor circuits when making an equalized recording. This will also cause a howling feedback sound with the potential for destroying your speakers. Monitor with headphones from the deck itself.

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 Reception Problems

If you're getting good FM reception, you can skip this section. If not, the following may help.

The T-shaped folded dipole antenna will give you adequate reception in most metropolitan areas. You can get the best possible indoor reception by moving the wire to face the transmitter.

"Fuzzy" stereo reception is usually the result of *multipath,* a phenomenon that causes the "ghosts" on a TV screen. Because FM radio waves are like light, they essentially travel along a straight "line-of-sight" path. They will go through plaster walls and such, but they are reflected by geographical features, massive concrete structures, metal surfaces and other dense objects common to cities and mountainous terrain. Not only does the signal reach your antenna directly from the transmitter, but it *also* gets there along its "bounce paths." These reflected signals arrive just slightly behind the direct signal. This causes the multiple images on a TV screen, and audible distortion in your stereo system.

Concept's advanced tuner circuits minimize the effects of multipath interference, so any audible problem will be an antenna problem. Try to get your antenna as high as possible, to give the direct signal a better chance at a clear path to it. A reflected signal can still give you good sound, but *multiple* reflections hurt; that's why proper orientation of your antenna may require some experimentation. In difficult reception areas, an outdoor antenna may be necessary; a good directional outdoor antenna is not only positioned higher, but it can better select between the desired direct signal and unwanted reflections. Your Concept dealer can advise you on an outdoor antenna.

FM Cable Connections

If you have cable FM, your cable service will provide the proper connecting hardware. However, cable services use TV frequencies and the FM sound usually leaves much to be desired.

75-ohm coaxial cable from an outdoor antenna may be connected directly to the 75-ohm antenna terminals, without the necessity of a matching transformer. The center portion of the cable goes to the 75Ω terminal; the outer "shield" goes to the antenna ground. If you use a balun or matching transformer, its two leads go to the blue (300Ω) terminals.

AM Antenna

To get satisfactory AM reception, the hinged AM antenna must be swung away from the back of the receiver.

If you live in a fringe reception area, you can improve AM reception with an outdoor AM antenna. This can be a single piece of insulated wire, strung outdoors between two insulators. Place it as high as possible. The outdoor portion of the wire should be 25 to 75 feet long. Connect it directly to the AM antenna terminal on the Concept's rear panel. To reduce possible interference, and for safety reasons, you must use a ground with an outdoor AM antenna. Connect the antenna ground terminal to an *earth ground*, such as a cold water pipe.

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 11.0 receiver has multiple sophisticated devices to protect against damage from short circuits and overload conditions. Should the speaker wires accidentally touch and cause a short circuit, the protection circuit shuts off the receiver and the green LED in the POWER button changes to red. If this happens, turn off the POWER button and check all speaker connections; correct

For the Technically Curious

where necessary. 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 at high power).

The Concept 11.0 also has a speaker relay that prevents the power surges from reaching the speakers when the receiver is turned on. During this interval, the LED in the POWER button glows red and there will be no sound from the unit. After a few seconds, you'll hear a slight click and the LED will change to green.

The reed relay that switches the muting circuit also protects Concept's circuits and your speakers from switching transients when you change functions.

The receiver has a 125V 8-amp AC line fuse. Should this fuse fail, replace it only with a fuse of the *same* rating. Use of a larger fuse will invalidate the warranty. 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 receiver terminals. Rather than increasing output power, it will cause serious damage to the amplifier.

For 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.

This section is a brief description of Concept's many innovative circuit features. It may prove helpful in understanding why Concept is unique among receivers and indeed a match for the best component separates.

FM Section

A dual-gate MOSFET and 4-gang tuning capacitor provide Concept with excellent sensitivity and immunity to overloading from very strong local signals. Concept also has an extremely steep quieting curve to achieve an outstanding signal-to-noise ratio on very weak signals.

The IF section utilizes three hand-picked, linear-phase ceramic filters to maximize selectivity while still keeping distortion extemely low.

Precise impedance matching of the limiter to the IF filters is also important in keeping distortion low. Concept accomplishes this by using three high-gain symmetrical limiters, which have over 90 dB of gain. The detector package is also high-gain, with a wide-band, low distortion full quadrature detector. Overall gain of the IF system is better than 130 dB, assuring you of noise-free, low-distortion reception on even the weakest signals.

A Phase-Locked Loop IC chip in the multiplex decoder keeps the tuner perfectly synchronized to the transmitter to achieve maximum stereo separation *and* the lowest possible distortion. Steep 19 and 38 kHz filters are built in; these eliminate spurious output signals without rolling off desired audio frequencies. This is especially important when making a Dolby-ized tape recording off the air, as such spurious signals can interfere with the Dolby process.

Preamplifier Section

Concept uses a three-stage phono preamp circuit with a differential pair input stage. The three-stage design insures that the circuit will have sufficient gain to accurately conform to the RIAA playback standard (± .2 dB over the whole range), even at the very lowest frequencies. The transistors are specially selected to provide noise-free amplification.

The differential pair input stage provides the highest degree of immunity to RF interference, an important consideration in urban areas and in light of the CB proliferation and resulting overcrowding of the airwaves. It also is tolerant of wide variations in cartridge inductance, allowing you to realize the full potential of virtually any high-quality cartridge made.

Tone Controls And Loudness Compensation

Concept's tone controls utilize completely independent, negative-feedback circuits, each with its own turnover point to provide more effective, useful compensation. the circuits together can provide up to 20 dB of boost or cut at the frequency extremes. Control is provided in 1 and 2 dB increments.

When the controls are in the "flat" (center detent) position, the circuits are bypassed completely to insure that the frequency response will be absolutely laboratory flat.

The loudness compensation circuit is unique to Concept. It is fully buffered so as to prevent interaction with source impedance to be fully independent. The circuit itself is a variable slope, variable turnover circuit, precisely calibrated in one decibel increments. Both low-end and high-end boost are newly defined by Concept. Corresponding to the most recent findings on the Fletcher-Munson effect, high-end boost is moderate.

Internal muting is achieved with a reed relay circuit at the output of the tone control section. The reed relay eliminates the "thumps" inherent in other types of muting controls, and also eliminates switching transients when changing from one source to another, for added protection at high volumes. The same reed relay also functions on the FM muting circuit.

Power Amplifier Section

The Concept 11.0's power amplifier uses direct-coupled, fully-complementary driver and output stages, with four output transistors per channel to increase reliability. These transistors are mounted on extruded aluminum heat sinks for maximum heat dissipation, another measure promoting long transistor

In Case of Difficulty

life. Two differential gain stages provide the lowest possible distortion at any power level.

A slew rate of approximately 18 V/μS assures excellent square wave response, even at 10 kHz. This slew rate exceeds the minimum required by a 3 to 1 margin, indicating frequency response extended far beyond specification, and insures the clarity and transparency inherent only in wide-bandwidth design, with no sacrifice in ruggedness.

An active protection circuit senses excessive current in the output stages, and then disconnects the speakers until the fault has been removed. This circuit protects the output transistors, and also prevents DC from reaching the speakers and damaging them.

The power supply is an oversized power transformer, heavy-duty bridge rectifier, and two 15,000 μF high-voltage electrolytic capacitors. This design assures that Concept's full power will be available at even the lowest frequencies where it's most needed.

110V-rated contacts in the speaker switches assure that all the power is available to the speakers.

The complete internal layout has been carefully designed to reduce hum and minimize any chance for oscillations to develop. Plug-in circuit boards are used throughout to facilitate service.

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 weaker 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; so 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 RUMBLE 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.

Thousands of hours of research, lab testing, field-testing and re-evaluating have evolved into your Concept 11.0. Certainly it is without peer in performance, styling and convenience; we feel that it will be one of the finest receivers available for quite some time. There will no doubt be attempts to copy Concept, 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 us with your comments. Also, we've enclosed a questionnaire and would appreciate its completion and return.

Specifications

Power Amplifier Section*

Continuous power output of 110 watts per channel minimum RMS, 20-20,000 Hz, both channels driven into 8 ohms with no more than 0.1% total harmonic distortion.
(20.4 dBW)

Continuous power output of 175 watts per channel minimum RMS, 20-20,000 Hz, both channels driven into 4 ohms with no more than 0.1% total harmonic distortion.
(22.4 dBW)

Typical THD at Full Power:
Less than 0.05%
Frequency Response:
20-20,000 Hz ± .2 dB
IM Distortion (50 Hz: 7 kHz = 4:1)
Less than 0.05%
1V Peak-to-Peak Rise Time:
2 μSec
Damping Factor:
Greater than 400 at 20 Hz.
Hum and Noise:
– 90 dB, weighted
Outputs:
Speaker A, B, C or any 2 together; 2 Lo-Z headphone

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

Preamplifier Section

Input Sensitivity	
Phono :	1.9 mV
Tape 1, Tape 2:	160 mV
Phono Overload:	200 mV
Input Impedance	
Phono :	50 kΩ
Tape 1, Tape 2, Main In:	20 kΩ
Output Level	
Tape 1, Tape 2:	600 mV at 1 kHz, referenced to 100% FM modulation or 10 mV phono

Phono Frequency Response:
30-15,000 Hz, ± .2 dB to RIAA curve
Tone Controls

Bass:	± 6 dB at 50 Hz in 2 dB steps
Mid-Bass:	± 10 dB at 100 Hz in 1 dB steps
Treble:	± 6 dB at 20,000 Hz in 2 dB steps
Mid-Treble:	± 10 dB at 10,000 Hz in 1 dB steps

Loudness Contour at – 30 dB at maximum setting:
+ 8 dB at 100 Hz, + 4 dB at 10,000 Hz
High Filter:
– 10 dB at 7,500 Hz, 6 dB/octave
Volume Control Balance:
within 0.3 dB tracking
Signal-to-Noise Ratio

Phono :	78 dB unweighted, 84 dB weighted
Tape 1, Tape 2:	85 dB
Main In:	90 dB

Residual Hum and Noise:
.5 mV
Crosstalk at 1 kHz:
– 65 dB

FM Tuner Section

Tuning Range:
87.5—109 mHz
Sensitivity

IHF:	9.3 dBf (1.6 μV) at 300 Ω
50 dB Quieting (mono):	13.2 dBf (2.5 μV)
50 dB Quieting (stereo):	36.8 dBf (38 μV)

Signal-to-Noise Ratio at 65 dBf:
72 dB
Stereo Separation

At 1 kHz:	Better than 50 dB
At 100 Hz:	Better than 40 dB
At 10 kHz:	Better than 38 dB

Total Harmonic Distortion at 65 dBf:
0.1% (mono), 0.1% (stereo)
Frequency Response:
30-15,000 Hz ± .5 dB
Capture Ratio:
1 dB
Alternate Channel Selectivity:
88 dB
Spurious Response Ratio:
Better than 100 dB
Image Response Ratio:
Better than 100 dB
IF Response Ratio:
Better than 100 dB
Muting Sensitivity:
16.1 dBf (3.5 μV)
Stereo Threshold:
16.1 dBf (3.5 μV)

AM Tuner Section

Tuning Range:
520—1650 kHz
IHF Sensitivity:
175 μV/m
Image Response Ratio:
65 dB
Signal-to-Noise Ratio:
45 dB

General

Dimensions

Width:	20 1/16" (50.95 cm)
Height:	7 " (17.78 cm)
Depth:	17 " (43.18 cm)

Weight: 48.6 lbs. (22.1 kg)

Limited Warranty

Your Concept receiver is protected by a limited warranty against defects in materials and workmanship, effective for 3 years from your purchase date. During that time, authorized Concept dealers will make all necessary repairs and parts replacement, free of charge.

Your purchase receipt must be retained and presented as proof of ownership when requesting warranty repairs.

The following conditions and/or occurrences will void the warranty:

- Serial number removed or defaced;
- Alteration, misuse, accident or neglect;
- Service performed by unauthorized persons.

Exceptions to this warranty are transportation costs and charges for unauthorized service which are not reimbursable under this warranty.

Concept assumes no liability for property damage of any sort which may result from the failure of this receiver. Any warranties implied by law are limited to the duration of this express limited warranty.

Some states do not allow exclusion or limitation on incidental or consequential damages, or time limitation on implied warranties. Therefore, some or all of this section may not apply to you. This warranty provides you with specific legal rights and you may also have other rights, which vary from state to state.

Authorized service for your Concept receiver is available most rapidly at Pacific Stereo stores. Check the Yellow or White Pages of your telephone directory for the location nearest you. If additional assistance is required, please write to Concept at the address provided below and describe the malfunction. Concept will send directions in writing.

Service Manager
Concept
CBS Inc.
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Itasca, Illinois 60143

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