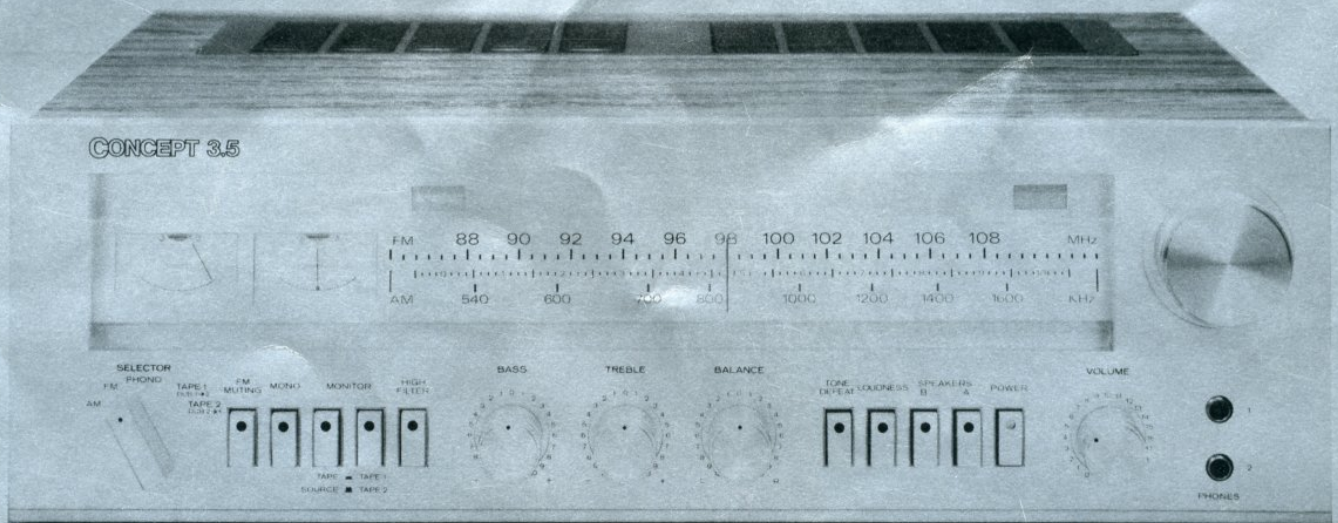


CONCEPT

3.5

Owner's 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 3.5 is the end result of a concentrated effort to design a line of no-compromise, user-oriented stereo receivers. 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 an instrument that will satisfy the most discerning audiophile.

Myriad design innovations make the Concept 3.5 as easy to use as to listen to. Most of the binary functions are controlled by newly engineered push buttons. 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 3.5 volume and tone controls have multiple detents to allow precise adjustments that are easily repeatable. All controls are arranged for maximum ease of use.

A sophisticated tuner section will match the performance of the finest separate tuners. Effective application is made of a 3-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 3.5 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 3.5 receiver the ultimate synthesis of the technical, the visual, and the tactile.

Unpacking

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

Serial Number: 105152

Date of Purchase: 7/20/77

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.

Connections

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

Speakers

The Concept 3.5 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. (See illustration under "Useful Information.") 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." **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. **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. Only a high-quality magnetic cartridge may be used in your record player. 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 3.5. (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 3.5. 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 3.5. 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 of all, 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. 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 3.5 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; 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 3.5 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

The bass and treble tone controls of the Concept 3.5 allow you to compensate for listening room acoustics, or add depth to many recordings. The controls have 21 positions of 1 dB change; the design lets you make precise amounts of boost or cut at useful points in the frequency spectrum.

Don't hesitate to experiment with the tone controls. Every recording is different, and many will sound much better with some tonal compensation. Usually slight adjustments provide the best results; use prudence in applying the tone controls.

The Concept 3.5 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.

Use the BALANCE controls 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

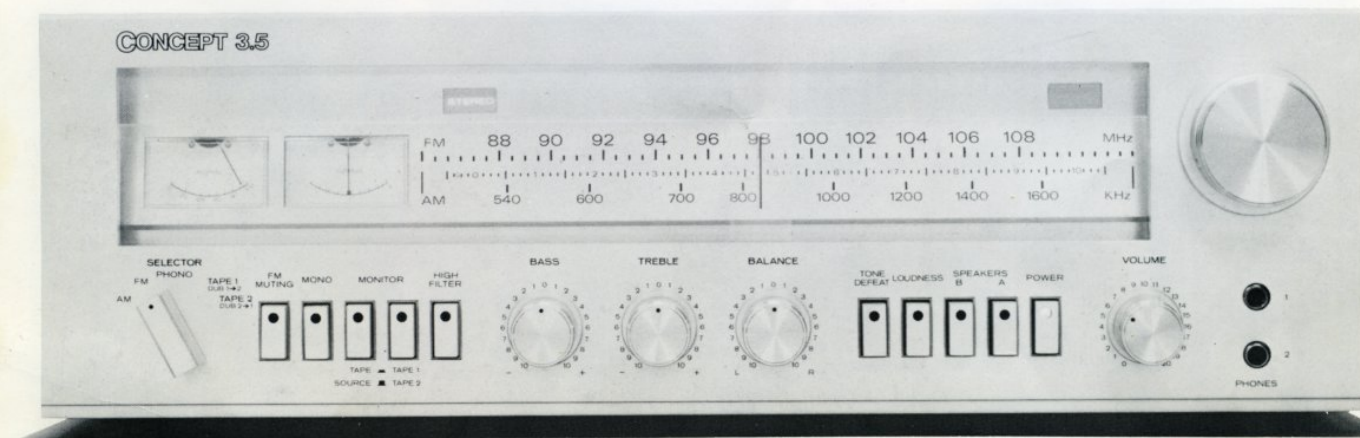
To just listen to a tape recording, turn the SELECTOR to Tape 1 or Tape 2, depending on which the deck is connected to.

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.

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.



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. Moisten it with alcohol, and 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 stable a surface as you can.

Limited Warranty

Your Concept receiver is protected with 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.
1601 W. Glenlake Avenue
Itasca, Illinois 60143

Specifications

Power Amplifier Section*

Continuous power output of 35 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
2.3 μ 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
88 dB

Input characteristic
330 mV, Hi Z

Outputs
Speaker A, B or both
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
100 mV

Output Level
Tape 1 750 mV
Tape 2 750 mV
Pre Out 330 mV

Phono Frequency Response
30 Hz to 15,000 Hz \pm .2 dB to RIAA curve

Tone Controls
Bass \pm 12 dB @ 100 Hz in 1 dB steps
Treble \pm 12 dB @ 10,000 Hz in 1 dB steps

Loudness Contour @ -30 dB
+8 dB @ 100 Hz, +4 dB @ 10,000 Hz

High Filter
-8 dB @ 7,500 Hz, 6 dB/octave

Volume Control Balance
Within 0.3 dB tracking

Signal-to-Noise Ratio
Phono 74 dB
Tape 1 85 dB
Tape 2 85 dB
Main In 88 dB

Residual Hum and Noise
0.8 mV

Crosstalk @ 1 kHz
60 dB

FM Tuner Section**

Sensitivity
1.7 μ V equivalent to 10 dBf/300 ohms

50 dB Quieting Sensitivity
3.5 μ V equivalent to 11.2 dBf/300 ohms

Signal-to-Noise Ratio @ 65 dBf
70 dB

Stereo Separation @ 1 kHz
44 dB

Distortion @ 65 dBf
mono 0.2%
stereo 0.25%

Frequency Response
30 Hz to 15,000 Hz \pm .5 dB

Capture Ratio
1.5 dB

Alternate Channel Selectivity
78 dB

Spurious Response Ratio
75 dB

Image Response Ratio
85 dB

IF Response Ratio
93 dB

Muting Threshold
10 μ V

**Measured in accordance with the latest IHF standard.

AM Tuner Section

IHF Sensitivity
175 μ V/m

Image Response Ratio
50 dB

Signal-to-Noise Ratio
40 dB

Antenna
Movable ferrite loopstick

General

AC Outlets
1 switched, 1 unswitched

Dimensions
18-3/8" (46.7 cm) W
6" (15.2 cm) H
15" (38.1 cm) D

Weight
27 $\frac{1}{4}$ lbs. (12.4 kg)

Enclosure
Rosewood pattern vinyl bonded as high pressure laminate to multiple-ply wood.
Front panel - 6mm solid aluminum extrusion
120 V AC only UL Approved

Thousands of hours of research, lab testing, field-testing and re-evaluating have evolved into your Concept 3.5. 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.

Concept
1601 W. Glenlake Ave.
Itasca, Illinois 60143