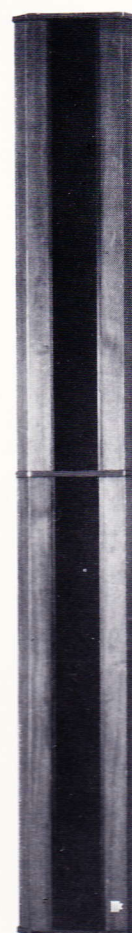


**McIntosh**  
**XRT 20**

# OWNER'S MANUAL



## THE XRT 20 ISOPLANAR LOUDSPEAKER SYSTEM



Reading Time: 20 Minutes

Price: \$2.00

**VARIOUS REGULATORY AGENCIES REQUIRE THAT WE BRING THE FOLLOWING INFORMATION TO YOUR ATTENTION. PLEASE READ IT CAREFULLY.**

**CAUTION: CONTINUED EXPOSURE TO HIGH SOUND LEVELS (90 DECIBELS AND OVER ON THE "A" SCALE SLOW RESPONSE) COULD BE DETRIMENTAL TO A PERSON'S HEARING.**

The McIntosh you have purchased is a Model XRT 20. It has a serial number located on the panel at the rear of the bass cabinet. Record that serial number here:

Serial Number

The model, serial number and purchase date are important to you for any future service. Record the purchase date here:

Purchase date

Upon application, McIntosh Laboratory provides a Five-Year Service Contract. Your McIntosh authorized Service Agency can expedite repairs when you provide the Service Contract with the instrument for repair. To assist, record your Service Contract number here:

Service Contract Number

Your XRT 20 Isoplanar Loudspeaker will give you many years of pleasant and satisfactory performance. If you have any questions, please contact:

#### CUSTOMER SERVICE

McIntosh Laboratory Inc.  
2 Chambers Street  
Binghamton, New York 13903-9990  
Phone: 607-723-3512

**Take Advantage of 5 years  
of Contract Service...  
Fill in the Application NOW.**

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## McINTOSH FIVE YEAR SERVICE CONTRACT

An application for a FIVE YEAR SERVICE CONTRACT is included with this manual.

The terms of the contract are:

1. McIntosh will provide all parts, material and labor needed to return the measured performance of each loudspeaker mechanism and each crossover component to the original factory performance limits. The SERVICE CONTRACT does not cover cabinets, cabinet finishes or any shipping costs. Ship only in the original shipping container. If a new shipping container is needed send your request to the factory in Binghamton, NY. If shipped in any container other than the factory approved container the service contract will be cancelled.
2. Any McIntosh authorized service agency will repair all McIntosh instruments at normal service rates. To receive service under the terms of the SERVICE CONTRACT, the SERVICE CONTRACT CERTIFICATE must be presented when the instrument is taken to the service agency.
3. Always have service done by a McIntosh authorized service agency. If the instrument is modified or damaged, as a result of unauthorized repair, the SERVICE CONTRACT will be cancelled. Damage by improper use or mishandling is not covered by the SERVICE CONTRACT.
4. The SERVICE CONTRACT is issued to you as the original purchaser. To protect you from misrepresentation, this contract cannot be transferred to a second owner.
5. To receive the SERVICE CONTRACT your purchase must be made from a McIntosh franchised dealer.
6. Your completely filled in application for a SERVICE CONTRACT must be post-marked within 30 days of the date of purchase of the instrument.
7. To receive the SERVICE CONTRACT, all information on the application must be filled in. The SERVICE CONTRACT will be issued when the completely filled in application is received by McIntosh Laboratory Inc. in Binghamton, NY.
8. Units in operation outside the United States and Canada are not covered by the McIntosh Factory Service Contract, irrespective of the place of purchase. Nor are units acquired outside the U.S.A. and Canada, the purchasers of which should consult with their dealer to ascertain what, if any, service contract or warranty may be available locally.

# Description

The McIntosh XRT 20 Loudspeakers provide an unique listening experience. A pair of XRT 20's can accurately recreate all of the stereo depth and spaciousness that is put into a recording.

As soon as you hear the new McIntosh XRT 20's you will be immediately aware you are no longer listening with the speakers. You are listening through them and into a world of three dimensional sound space. The emotional impact is overwhelming. Older technology gave you sound where you heard a "stereo" image between the speakers. This was thought to be stereo, but it was all in the plane of the wall - a two dimensional image. Stereo is defined, however, as "having or dealing with three dimensions of space". By careful manipulation of response amplitude and arrival time in the crossover network, as well as optimum driver arrangement, a degree of accuracy beyond older technology is realized. By adding the dimension of depth, a truly three dimensional sound space can now be reproduced.

The tweeter column of the XRT 20 has a total of twenty-four one inch dome tweeters. The total accumulated power handling of these tweeters is 250 watts RMS sine wave. By mounting them in a vertical line in the same plane, the correct time-amplitude relationship can be maintained. Three dimensional sound space can then be preserved for a large listening area. The column radiates a cylindrical wave-front instead of the normal spherical shape. This results in less attenuation with distance and at the same time minimizes floor and ceiling reflections. Uniform dispersion is maintained in the horizontal plane. The 6½ foot column essentially runs from floor to ceiling in the typical home. Vertical directionality, therefore, is not encountered. A short column would have serious vertical directional problems.

The mid-range and low frequency drivers are specially designed high power units which complement the tweeter array. A total of 27 drivers are built into each XRT 20.

# How to Use

The performance of the speakers in your listening room will be influenced to some degree by the room size, shape, construction and furnishings. The location of the speakers in the room also affect the listening quality. It is often advisable to voice or equalize the speakers to the room for best performance. The McIntosh MQ 104 or MQ 107 Environmental Equalizer is available for this purpose. Equalization is a service that your McIntosh franchised dealer is equipped, trained, and ready to do for you. But in any event the low distortion and wide dispersion of the XRT 20's will provide superior sound in the typical home environment.

## FURTHER ADJUSTMENTS

If your room is furnished with thick carpeting, drapes and other sound absorbent material, you may decide you are not getting enough high frequencies where you are listening. You can compensate by turning up the high frequency control in your preamp to the 1 or 2 o'clock position. You could also reduce the low frequency control.

If your room is furnished with large glass areas, smooth hard walls, concrete or tile floors, or other reflecting material, you may decide there are too many high frequencies. You can compensate by turning down the high frequency control to 11 or 10 o'clock. You could also increase the low frequency control.

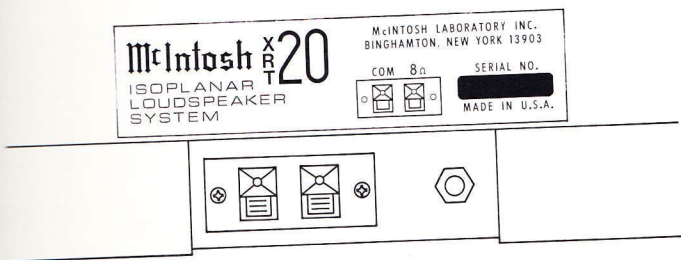
In a similar way you can use the high and low frequency controls in your preamp to adjust for different types of music. Some recordings may sound unusually bright and others unusually dull. Use the tone controls to compensate for the best frequency balance to suit you.

## SPEAKER - TURNTABLE FEEDBACK

The XRT 20's should normally be located away from the turntable to reduce the possibility of mechanical or acoustical feedback. Test your setup to see if there is a problem. Lower the tonearm onto a record so the stylus rests in the groove but without the turntable running. Gradually increase the volume control until it is at the highest setting you use. If you are able to arrive at this point without any sustained sound, gently tap the turntable mounting board. The amplified sound of tapping should go away immediately. If it continues or gets louder, there is a serious coupling problem. A turntable isolation system is needed or the speakers should be moved further away from the turntable.

## CONNECTIONS

The amplifier output connects to the speaker terminals located at the bottom rear of the XRT 20 cabinet.



Connect the 8 ohm terminal of the speaker to the 8 ohm or positive terminal on the power amplifier. Connect the common terminal of the speaker to the common or negative terminal of the power amplifier.

Selection of the proper diameter wire to connect the loudspeakers preserves the quality of sound reproduction for which the loudspeakers have been designed. If under-size wire is used, resistance is added to the amplifier/loudspeaker combination which adversely affects performance. This added resistance causes depreciation of damping characteristics, modification of frequency response and reduction in power delivered to the XRT 20.

Use lamp cord or wire with similar insulation to connect the speakers to the amplifier. In all cases, the leads to and from the speaker should be twin conductor or twisted together. When connecting the XRT 20 speakers for normally short distances of under 30 feet, #18 or larger wire can be used. For distances over 30 feet between the amplifier and speaker use larger diameter wire. Select from the chart the correct size for the distance. It is recommended that the DC resistance of the speaker leads be kept less than 5% of the speaker impedance.

### WIRE GAUGE VS CONNECTING LEAD LENGTH

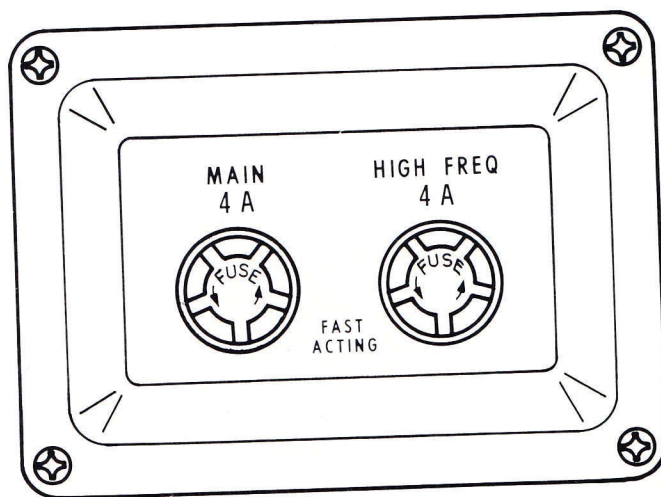
Wire Gauge	Maximum Feet	Maximum Meters
18	30	9.14
16	50	15.24
14	80	24.38
12	120	36.58
10	200	60.96

The lengths above represent the wire resistance equal to 5% of the speakers impedance.

### OVERLOAD PROTECTION SYSTEM

Two fuses are used in the XRT 20 to protect against overdrive and burn-out. A 4 amp main fuse is connected in series with the input to the system. A 4 amp high frequency fuse is in series with the tweeters and their associated crossover network.

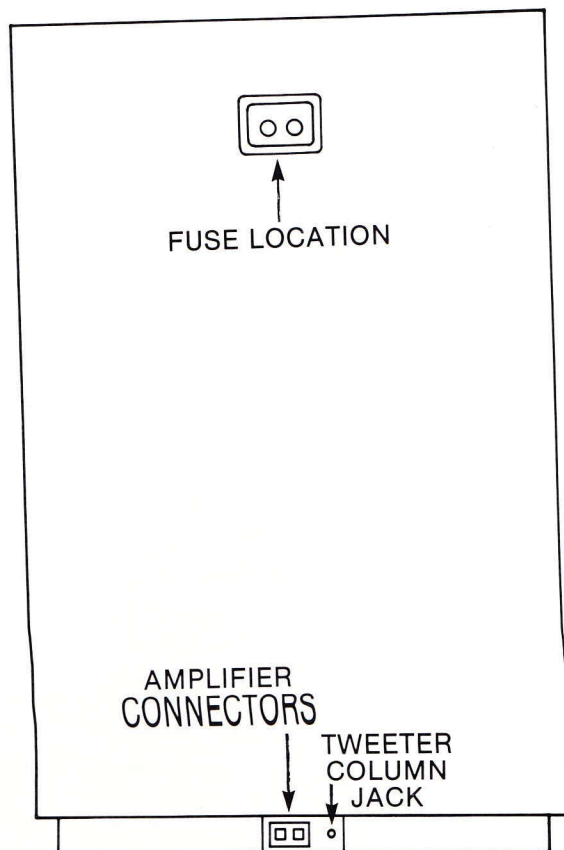
Replace these fuses only with the same value fast acting types. Do not use slo blo type fuses.



### INDICATOR LIGHTS

The yellow indicator light, located on the lower front of the XRT 20, is a warning indicator that will begin to come on only when the XRT 20 is driven close to the maximum power it will handle. It is connected at the system input before the main fuse. If the main fuse blows and you continue to drive the system, the yellow light will continue to fluctuate but no sound will be heard.

The adjacent red indicator light will come on only if the high frequency fuse has blown. If you continue to drive the system under these conditions, the red light will continue to fluctuate but the high frequencies will not be heard.



# How to Set Up

Each XRT 20 system consists of two parts; a bass cabinet and a high frequency column. The column is shipped in two sections to be assembled together on a wall or on an optional column stand. In either arrangement, the bass cabinet is to be placed 8" (20.3cm) from the column.

## RULE OF THIRDS (Refer to Figure 1)

In a normal installation, the mounting wall width should be divided into 1/3 intervals. The high frequency columns can be located at these intervals, however this positioning is an approximation. The columns can be located further apart or slightly closer together with equally good performance. The bass sections can be located on the outside of the columns and 8" (20.3cm) away. Alternately, the bass cabinets can be located on the inside of the columns, and 8" (20.3cm) away, for as good performance. Avoid placing the column in or near the corner of the room, or near other reflecting surfaces.

## COLUMN STAND INSTALLATION

An optional column stand is available for the XRT 20 system as an alternate mounting system. This assembly will mount the high frequency column to the bass cabinet when wall attachment is either not possible or not desired. For information on the stand see page 8. For best performance, the system

should be located as close to the wall as possible. Alternately, the system can be located 12" (30.5cm) or more from the wall.

## WALL INSTALLATION

Each of the two high frequency sections comes with a wall bracket. Both brackets are identical. The wall brackets must be mounted in line on the wall, one above the other, and touching in the center. The high frequency sections will assemble and mount on these wall brackets. Appropriate mounting hardware will be needed to mount the wall brackets depending on the type and construction of the wall. Four 10 x 1 inch screws are provided for mounting into 2 x 4 studs within the wall if they are located near the 1/3 interval locations. "Molly" type fasteners can be used for mounting to paneling or plasterboard. Lead anchor fasteners can be used for mounting to masonry.

## MINIMUM DISTANCES (Refer to Figure 2)

The minimum flat wall space required between the top of the baseboard and the ceiling is 82-3/8" (209.2cm). The 3-3/4" (9.5cm) minimum distance between the column bottom and the baseboard allows adequate space to connect and disconnect the phone cable plug. This 3-3/4" (9.5cm) dimension can be reduced to 1" (2.5cm) if the phone cable plug is

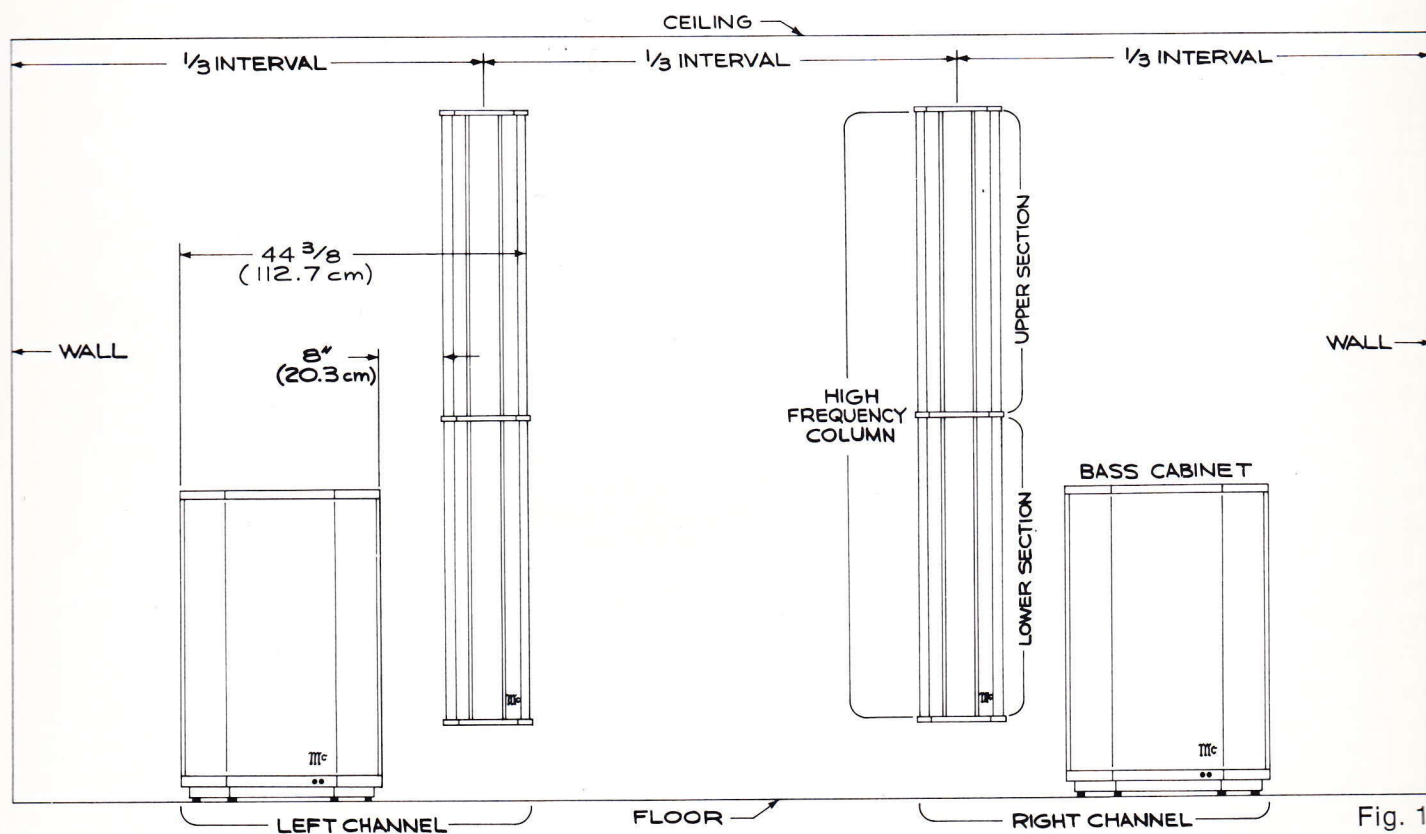


Fig. 1

attached before the column is hung on the wall brackets. This would reduce the 82-3/8" (209.2cm) minimum to 79-5/8" (202.2cm). The distance from the bottom of the column to the floor should not exceed 12" (30.5cm) to prevent a sacrifice in performance. The 1-1/2" (3.8cm) minimum distance between the column top and the ceiling allows adequate space to raise up the column when hanging it on the wall brackets.

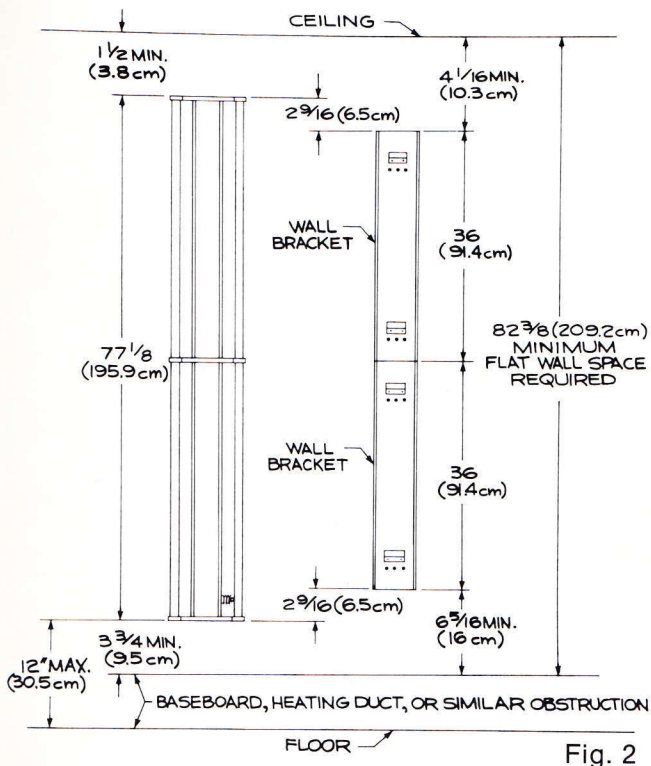


Fig. 2

### ATTACHMENT OF WALL BRACKETS (Refer to Figure 3)

- Step 1:** Determine from figure 2 the proper distance from the bottom of the wall bracket to the floor. Keep in mind the minimum and maximum allowable distances.
- Step 2:** Hold the lower wall bracket against the wall at the proper location, making sure it is exactly perpendicular with the floor. Make sure the bracket is right end up. The mounting tabs should be above each of the three mounting holes.
- Step 3:** Using a pencil, mark the position of all three 9/32" (70mm) diameter holes at each end of the wall bracket. Only the center hole of each need be used. The hole on either side can be used if the wall stud is at a slight angle, or an obstruction is found in the wall. Using the proper fastener for the wall construction, mount the wall bracket securely. (four black 10 x 1" screws are provided in the hardware packages).
- Step 4:** Mount the upper wall bracket using the same method. Make sure the two brackets are in alignment and tight together.

- Step 5:** Attach the wood cover to the bottom of the lower section with the two brown, 8 x 3/4" screws provided.
- Step 6:** Hang the lower section on the lower wall bracket by engaging the mounting tabs on both parts. The top of this section will be at the same height as the top of the lower mounting bracket when correctly mounted. Place the lower section against the wall bracket at least 1-1/2" (3.8cm) higher than the mounted position, and let it slide down in position. Make sure the mounting brackets are engaged by lightly pulling outwards on the lower section.
- Step 7:** Attach the wood cover to the bottom of the upper section using two brown, 8 x 3/4" screws. The center of this cover is cutout to allow access to the connecting wires.
- Step 8:** Attach the wood cover to the top of the upper section using two brown, 8 x 3/4" screws.
- Step 9:** Connect the three wire plug and socket from each high frequency section. If they will not engage, rotate one by 180 degrees.
- Step 10:** Hang the upper section using the same method as with the lower section. Make sure the wires do not get pinched or prevent the two sections from coming together.

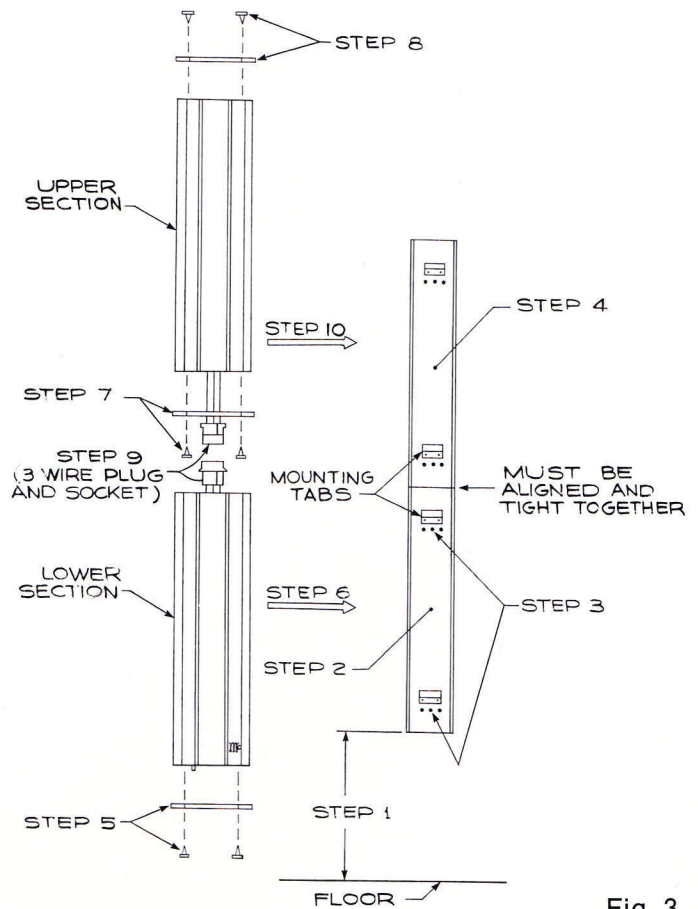
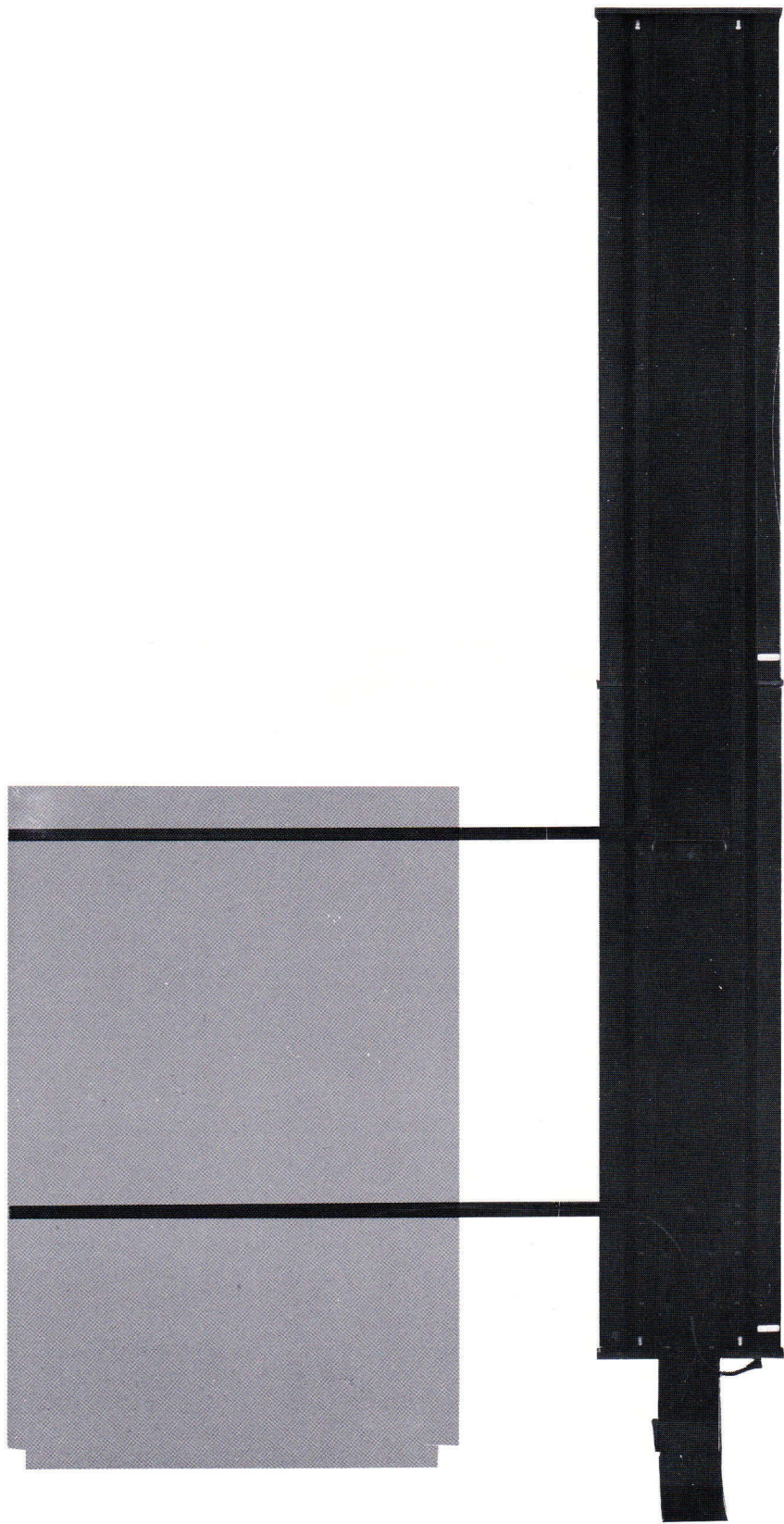


Fig. 3




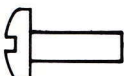
# How to Assemble the Optional CS 20 Column Stand

## TOOLS REQUIRED

Both a slotted and phillips screwdriver will be needed for the assembly.

## HARDWARE PACKAGE

Separate and identify the contents of the hardware package.

(QTY)	SIZE	PROFILE	USE FOR
(4)	1/4-20 x 1 1/2		STEP 1
(2)	Adjustment Mechanism		STEP 1
(2)	10-32 x 7/8		STEP 1
(2)	1/4-20 x 1		STEP 2
(2)	10-32 x 1/2		STEP 3
(2)	10-32 Nut		STEP 3
(4)	1/4-20 x 5/8		STEP 3
(4)	10-32 x 1		STEP 4
(4)	10-32 x 1/4		STEP 5
(6)	8 x 3/4		STEP 6&9
(2)	10-32 x 1 1/4		STEP 12
(3)	Cable Clamps		STEP 14

## ASSEMBLY INSTRUCTIONS

### STEP 1:

In the carton there are two cabinet braces made from 3/4 x 3/4 inch (1.9cm) metal tubing, 39-5/8 inches (106 cm) long. There are four holes in the rear of the XRT 20 bass cabinet. Fasten the cabinet braces to the rear of the cabinet using four 1/4-20 x 1-1/2 flat head screws. One side of the tubing is countersunk to allow the screws to set flush. *Do not tighten the screws completely.*

Attach the adjustment mechanism to the underside of the top cabinet brace using two 10-32 x 7/8 pan head screws. The screw head on the adjustment mechanism must be at the end of the cabinet brace as shown. *Tighten these two screws.*

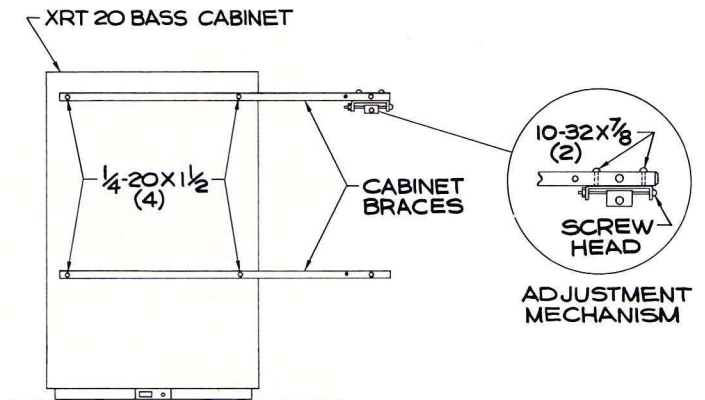


Figure 4



Figure 5

### STEP 2:

Attach the lower assembly (the shorter of the two assemblies in the carton) to the front side of the cabinet braces using two 1/4-20 x 1 flat head screws. The end of the lower assembly with three attachment plates must be at the bottom. The top screw goes through a hole in the adjustment mechanism and into the center hole of the attachment plate. The

bottom screw goes through a hole in the cabinet brace and into the center hole of the attachment plate. *Do not tighten the screws completely.*

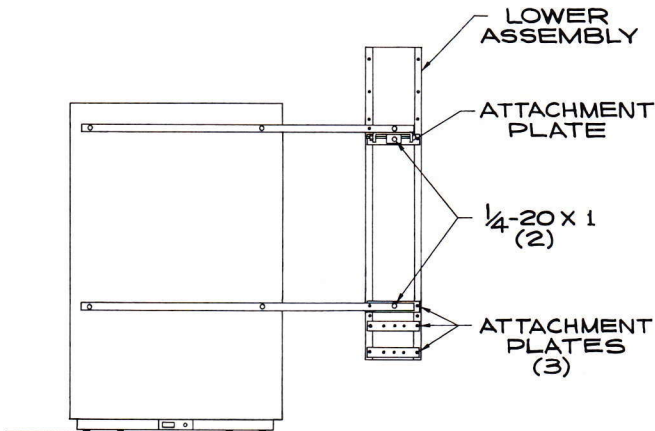


Figure 6

**STEP 3:**

Determine first whether the XRT 20 system will be used against a wall or away from a wall. Refer to a discussion of this on page 5. When the system is used against a wall, only one foot is required. (Refer to figure 7 & 8) Attach the foot to the attachment plates using four 1/4-20 x 5/8 pan head screws. *If necessary, raise the assembly until the holes line up with slots in the foot.*

*necessary, raise the assembly until the holes line up with the slots in the feet.*

*The feet are slotted to provide vertical adjustment to compensate for the thickness of floor coverings. (hardwood floors versus thick carpets)*

*Tighten the four screws mounting the feet, the two screws of step 2, and the four screws of step 1.*

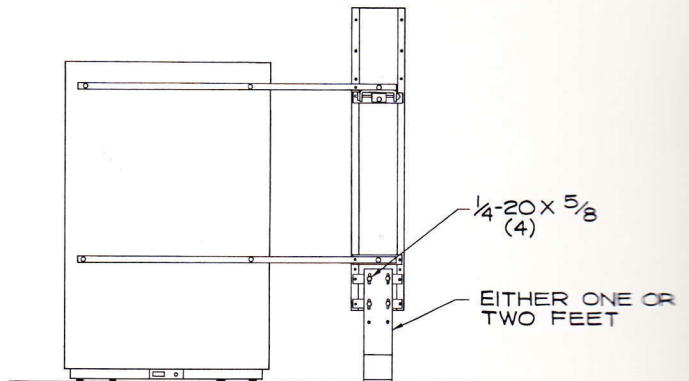


Figure 9

**STEP 4:**

The upper assembly will plug into the top of the lower assembly as shown in figure 10. Secure with four 10-32 x 1 flat head screws. *Make sure the screws just above these are tight also.*

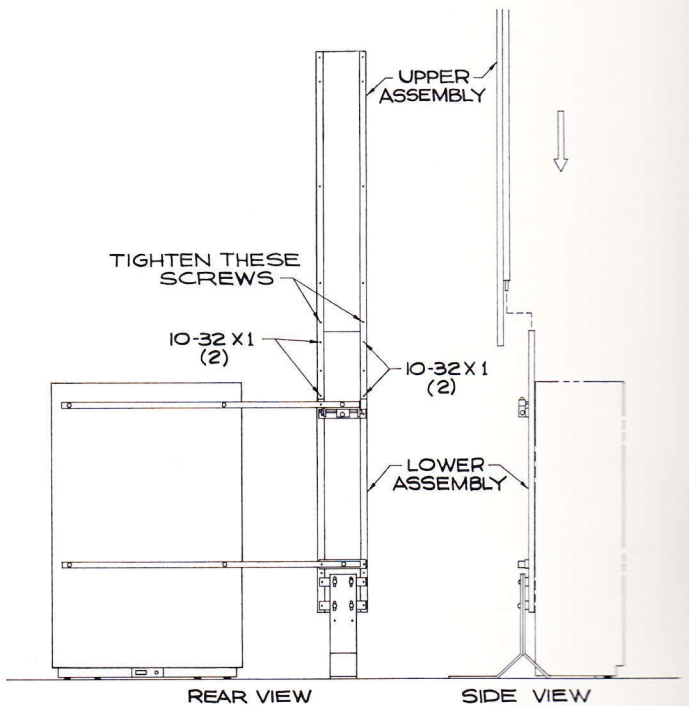
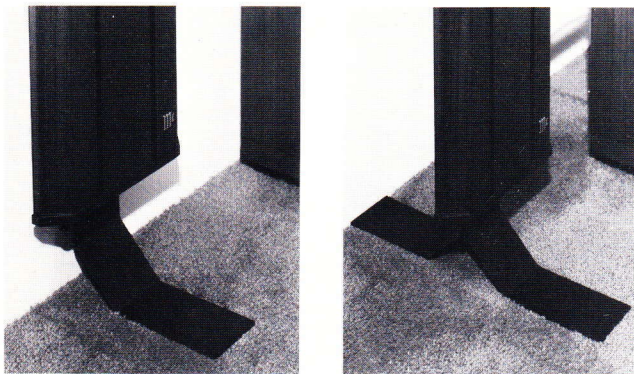


Figure 10

**STEP 5:**

Attach the XRT 20 wall brackets (packed with the XRT 20) to the front of the Column Stand using four 10-32 x 1/4 pan head screws. *Make sure the two wall brackets are pushed tightly together.*

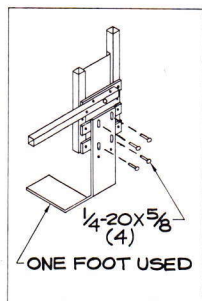


Figure 7

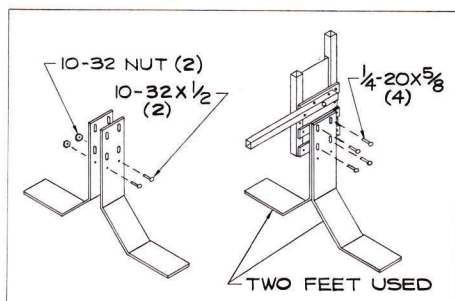


Figure 8

When the system is used away from a wall, two feet are required. (Refer to Figure 8 & 9) Fasten the two feet together using two 10-32 x 1/2 pan head screws and nuts. Attach the feet to the attachment plates using four 1/4-20 x 5/8 pan head screws. *If*

## STEP 6:

Attach the wood cover to the bottom of the lower section with the two screws provided in the XRT 20 hardware package.

## STEP 7:

Hang the lower section on the lower wall bracket by engaging the mounting tabs on both parts. The top of this section will be at the same height as the top of the lower mounting bracket when correctly mounted. Place the lower section against the wall bracket at least 1-1/2 inches (3.8 cm) higher than the mounted position, and let it slide down in place. *Make sure the mounting brackets are engaged by lightly pulling outwards on the lower section.*

## STEP 8:

Attach the wood cover to the bottom of the upper section using two screws from the XRT 20 hardware package. The center of this cover is cut out to allow access to the connecting wires.

## STEP 9:

Attach the wood cover to the top of the upper section using two screws from the XRT 20 hardware package.

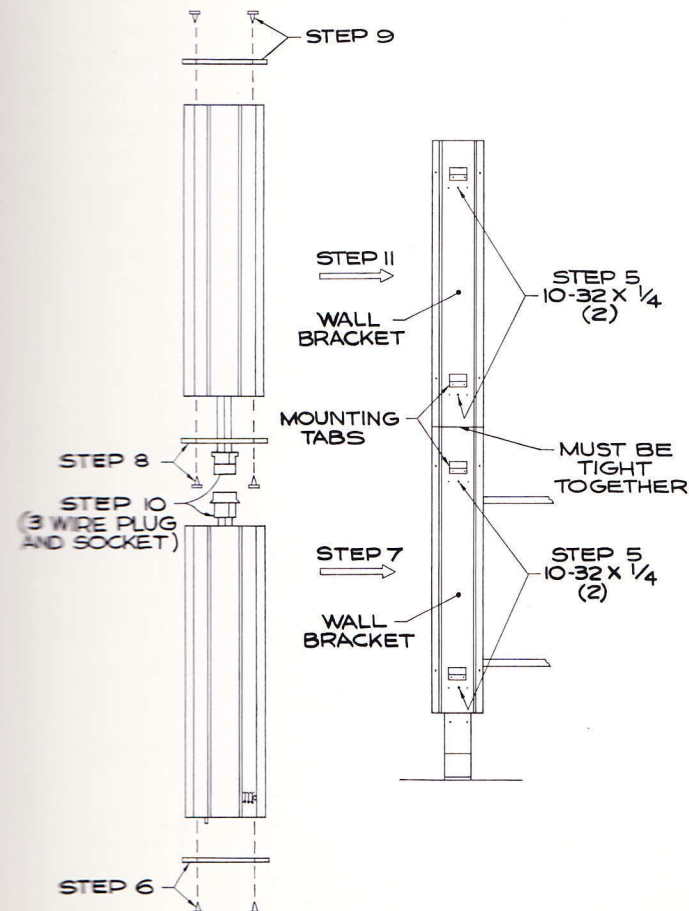


Figure 11

## STEP 10:

Connect the three wire plug and socket from each high frequency section. If they will not engage, rotate one by 180 degrees.

## STEP 11:

Hang the upper section using the same method as with the lower section. Press the attached plug and socket to one side of the tweeter magnets. *Make sure the wires do not get pinched or prevent the two sections from coming together.*

## STEP 12:

There are four 3/8 inch (9.5mm) diameter clearance holes in the tubing of the rear upper assembly as shown in figure 12. Pass all four 10-32 x 1-1/4 pan head screws through these holes and engage them into the threads on the opposite side of the tubing. Turn these screws as far as they will go. (the head of the screw will pass right on through the 3/8 diameter hole and bottom out inside of the tubing) These screws press against the upper section of the high frequency column and hold it securely in position.

## STEP 13:

There are also four screw positions in the tubing of the rear lower assembly as shown in figure 12. Install four 10-32 x 1-1/4 pan head screws as described in Step 12 above.

## STEP 14:

Three cable clamps have been included in the hardware package to help dress the connecting cable along the rear of the cabinet brace, or along the bottom of the wall baseboard, or whatever the installation requires.

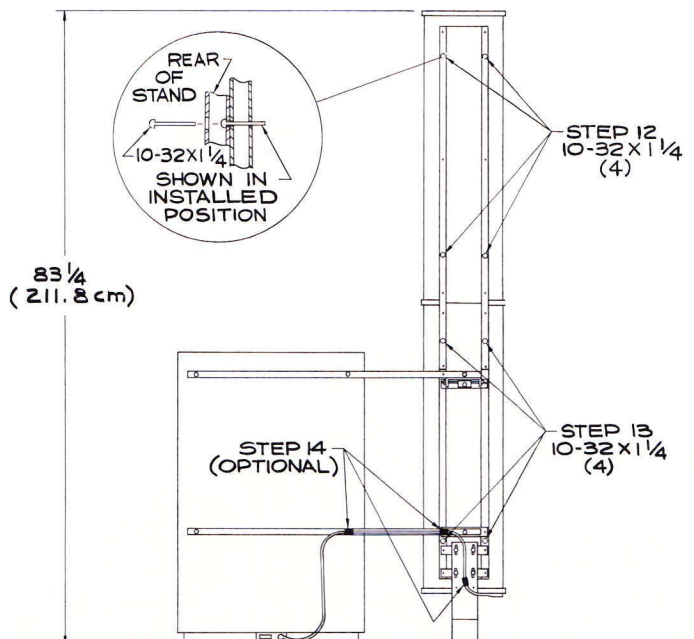


Figure 12

### STEP 15:

Place the XRT 20 loudspeaker system against the wall or in the operating position. By turning the adjustment screw either clockwise or counterclockwise, the Column Stand can be adjusted so it will stand perfectly straight. (Refer to Figures 5 and 13).

### STEP 16:

Begin to assemble the second Column Stand to the opposite channel bass cabinet. *The cabinet braces will assemble to the rear of the bass cabinet facing to the left rather than to the right as shown in the accompanying drawings.* (Refer to page 4 for the instructions on "How To Set Up" the loudspeaker system.) The remaining assembly Steps 1 through 15 are identical.

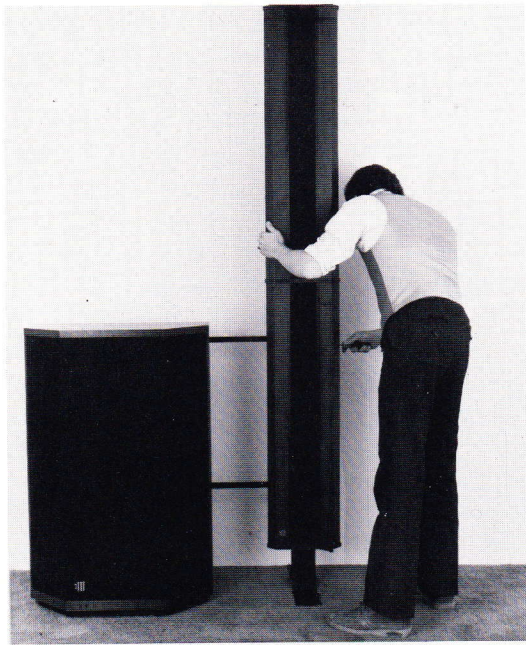


Figure 13

# Performance Limits and Ratings

## FREQUENCY RESPONSE

The frequency range capability of the XRT 20 is from 20 Hz to 20,000 Hz. The smoothness of response, however, may be influenced by your listening environment. Equalization can be used to restore smooth response when necessary.

## AMPLIFIER DAMPING FACTOR

The minimum amplifier damping factor requirement is 10. Adequate connecting wire size must be used to maintain proper damping factor and minimize power losses. Performance of the XRT 20 is not improved by using super high amplifier damping factors.

## REFERENCE OUTPUT LEVEL

One watt input referred to 8 ohms will produce an 87 dB sound pressure level at 1 meter.

## POWER RECOMMENDATIONS

As little as 30 watts can be used for smaller rooms or low listening levels. An adequate power reserve is recommended, however, to handle unexpected peaks from program material with wide dynamic range or when using expanders. It will also help to avoid clipping the power amplifier which can cause distorted sound or blown fuses. McIntosh amplifiers equipped with Power Guard automatically prevent clipping. Amplifiers up to 250 watts or higher can be used when the program material is similar in spectral content to "program" noise.\*

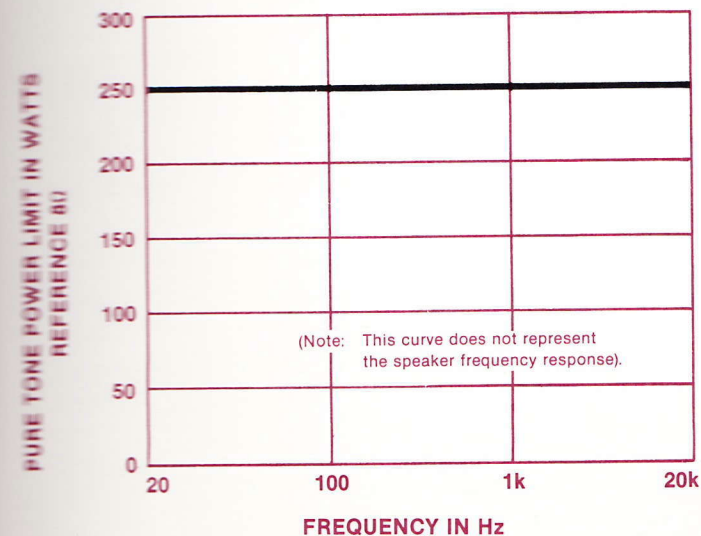


Figure 14

The graph in Fig. 14 shows the maximum pure tone or sine wave power that can be handled by the XRT 20. Program material such as sustained guitar notes, organ tones, sine wave oscillators and test records, etc., should not exceed these power limits.

## IMPEDANCE

8 ohms (nominal)

## CROSSOVER FREQUENCIES

100, 250, 1.5kHz

## SPEAKER

Woofers, two: 12" (30.5 cm) diameter;

Mid-range, one: 8" (20.3 cm) diameter;

Tweeters, twenty-four: 1" (2.54 cm) diameter

## CABINET SIZE

Bass Section: 39-9/16" (100.5 cm) high, 25-7/8" (65.7 cm) wide, and 12-7/8" (32.7 cm) deep.

High Frequency Section: 77-1/8" (195.9 cm) high, 10-3/4" (27.3 cm) wide and 11-3/16" (4.6 cm) deep.

## CONSTRUCTION

The cabinet is constructed of 45 pound density particle board with hardwood bracing. The exterior is genuine walnut veneer with lacquer finish.

The high frequency column is constructed of aluminum extrusions finished with genuine walnut veneer and solid wood end caps.

## SYSTEM WEIGHT

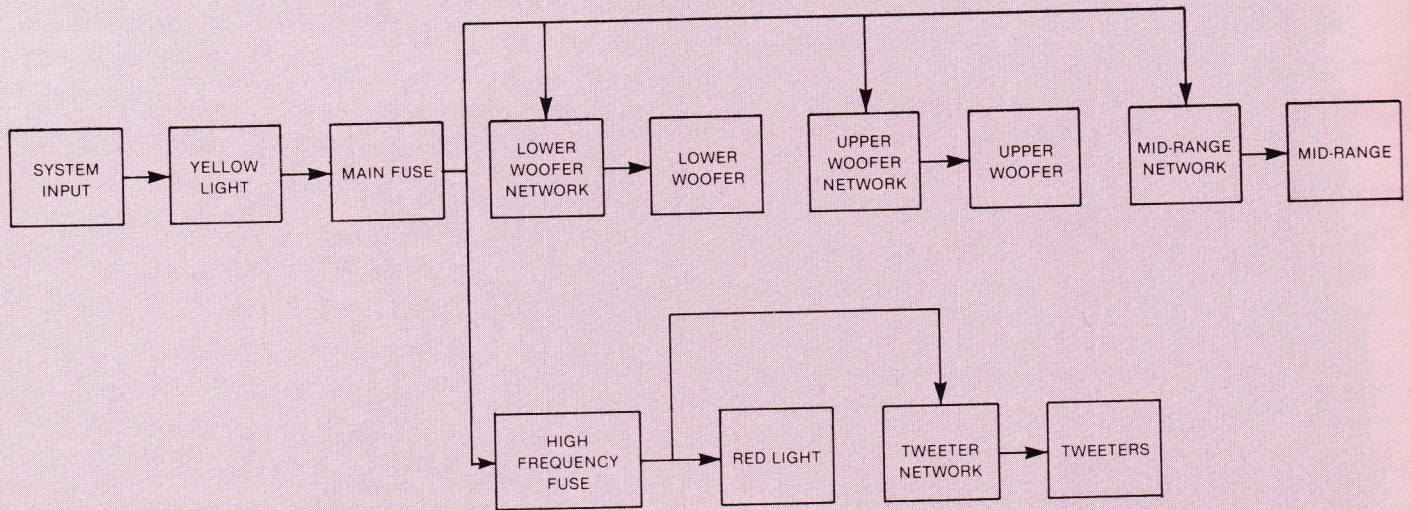
170 lbs. (77.1 kg)

## SHIPPING WEIGHT

192 lbs. (87.1 kg)

\*EIA STANDARD 426

# Block Diagram



McINTOSH XRT 20 ISOPLANAR LOUDSPEAKER SYSTEM

Figure 15



# McIntosh

**McINTOSH LABORATORY INC.**

**2 CHAMBERS ST., BINGHAMTON, N.Y. 13903-9990**

**607-723-3512**

The continuous improvement of its products is the policy of  
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