

McIntosh

PRODUCT INFORMATION

REMOTE CONTROL SYSTEMS

HOME THEATER SYSTEMS

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REMOTE CONTROL SYSTEMS - HOME THEATER SYSTEMS

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039-826		ACM-1 Area Module
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SIX SEPARATE AUDIO PROGRAM INPUT SIGNALS CAN BE ACCOMMODATED

The CR10 can accept the following program signal sources to be programmed for any of the four areas.

- 1: CD PLAYER (CD2 is sent to the CR10 from a C39, MX130 or MX118)
- 2: TUNER
- 3: VIDEO (Audio signals from a video accessory)
- 4: TAPE 1
- 5: TAPE 2
- 6: AUXiliary

CR10 UNITS CAN BE CASCADED FOR ADDITIONAL AREA CONTROL

A 25 pin connector labeled TO NEXT CONTROLLER on the back panel of the CR10 is provided for installing a cable to a similar connector labeled CONTROLLER INPUT on an additional slave CR10. This allows you to control an additional four areas. Use a 25 conductor subminiature "D" male-to-male computer type cable. As many as 10 CR10 units can be cascaded in this manner for a total control capability of 40 areas.

The CONTROLLER INPUT on the main area CR10 can also be used to connect a Model C38, C39 or MX130 into the CR10 system. For this connection use a shielded 25 conductor subminiature "D" male-to-female computer type cable.

CR10 FRONT PANEL DISPLAYS

Signal source programming and operating functions are indicated on the CR10 front panel displays.

1. The program signal selected for each of the four areas..
2. The areas that are active and in use.
3. The volume level selected for each area.
4. When the HC-1 is being programmed, HOME LED will light.
5. If Area One is Muted, MUTE LED will light.

CR10 FUNCTION MODIFICATIONS

Your McIntosh dealer can make any of the following modifications to change the CR10 operating functions.

1. A Slave CR10 connected to the main CR10 can be modified to accept only signals from a dedicated CD Player or dedicated Tuner. Program signals from these dedicated units will only be available in the four areas covered by the Slave CR10.

2. The standard turn on functions can be changed.

The turn on volume can be changed from 50dB below maximum, to the last used volume setting. The turn on program source can be changed from TUNER, to the program source last used.

3. The CR10 front panel IR sensor can be disabled, to avoid interference when an R668 Flood Emitter is being used with an R657 IR Repeater. This condition occurs when accessory components are being used in the CR10 system. The front panel sensors must be disabled on all slave CR10 units.

CR10 SYSTEM MODIFICATIONS DEDICATED CD PLAYER AND TUNER FOR SLAVE UNIT

A CR10 slave unit connected to a main CR10 system, can be modified to perform special functions, isolated from the main CR10.

A separate dedicated Tuner and/or CD player can be connected to a slave CR10. These dedicated components will then operate only in the four zones controlled by that specific slave CR10. To modify and isolate the slave CR10, cut the appropriate jumper leads on the System Control Circuit Board as indicated on the drawing. The drawing shows only one corner section of the card.

Jumper Lead "A", CD Data.

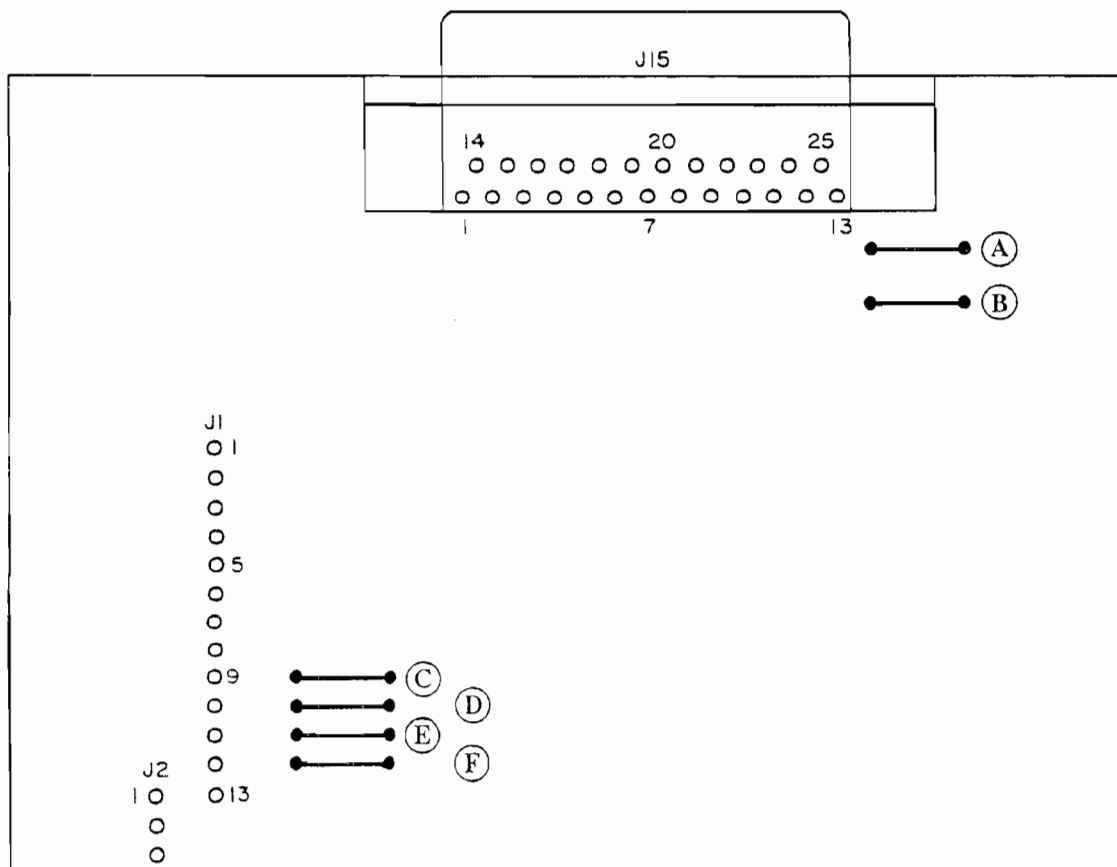
Jumper Lead "B", Tuner Data.

Jumper Lead "C", CD Left Channel Input.

Jumper Lead "D", CD Right Channel Input.

Jumper Lead "E", Tuner Left Channel Input.

Jumper Lead "F", Tuner Right Channel Input.

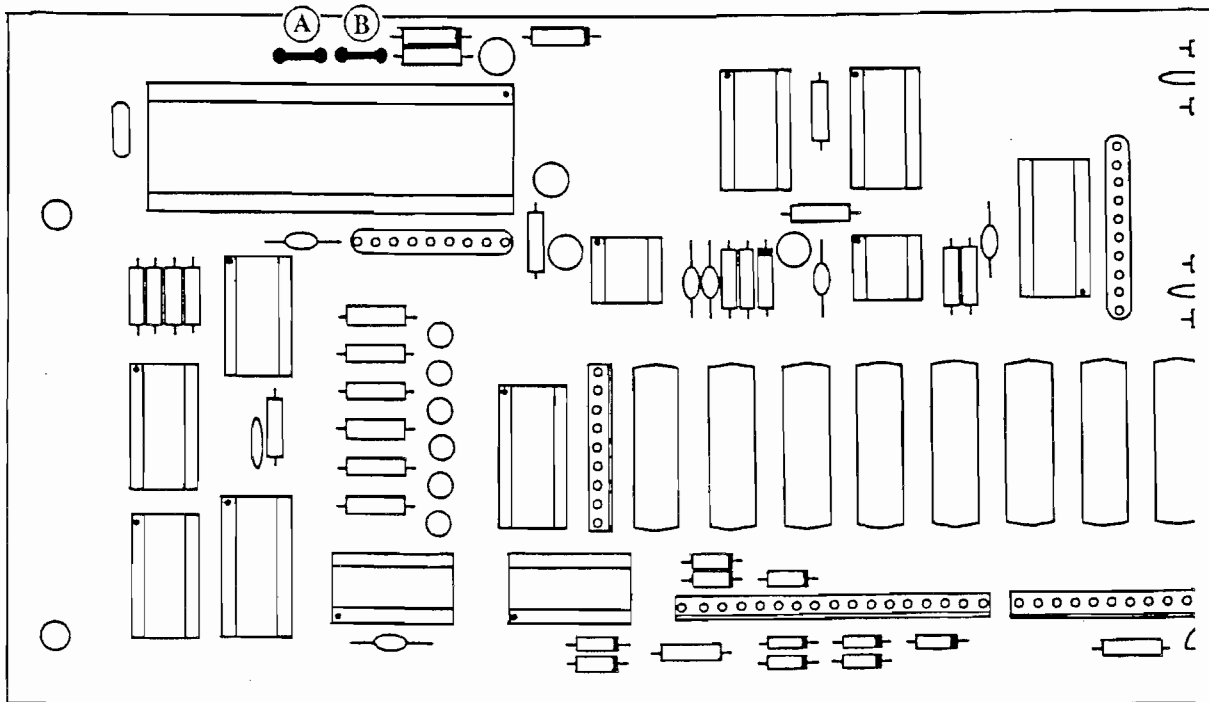


CR10 SYSTEM MODIFICATIONS PROGRAM INPUT SOURCE AND VOLUME TURN ON CHANGES

At Turn On, each area of a normal CR10 will automatically switch to the TUNER program source, at a volume level 50dB below maximum. It is possible to modify either an ACM-1 or ACM-2 Area Control module to turn on with the last used program source, and with the last used volume setting. Cut the appropriate jumper leads on the circuit board as indicated on the drawing.

To have a particular area turn on with the program signal source last being used.
Cut Jumper Lead "A".

To have a particular area turn on with the same volume setting last used.
Cut Jumper Lead "B".

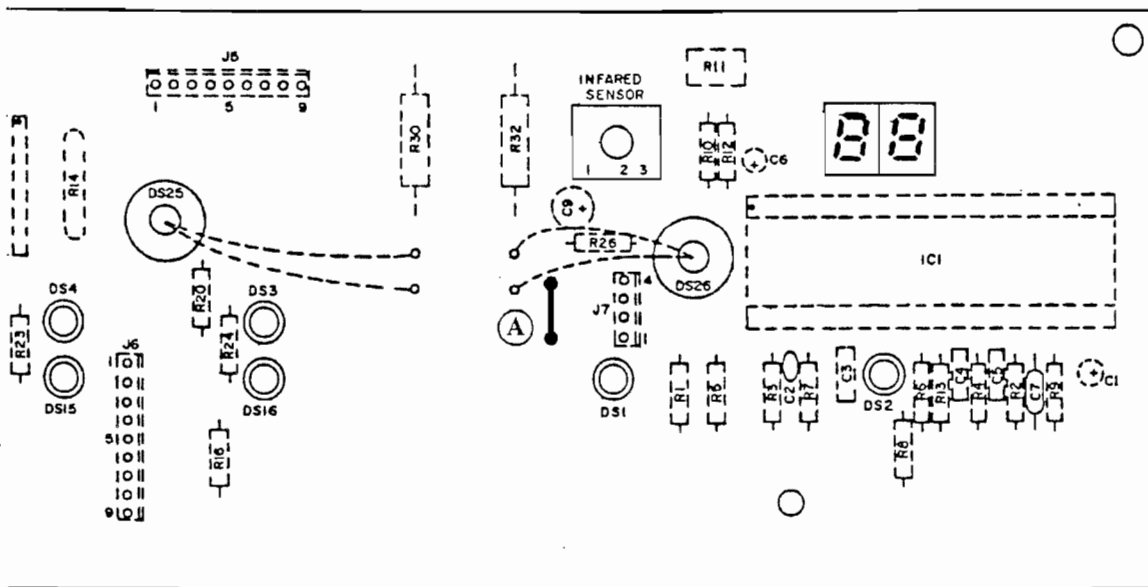


CR10 SYSTEM MODIFICATION DISABLE THE CR10 FRONT PANEL IR SENSOR

In installations where a McIntosh R668 IR Flood Emitter is used to control accessory equipment in the same area where a CR10 is located, it may be desirable to disable the CR10 front panel IR sensor. The IR signals from the flood emitter could cause interference or feedback with the CR10 front panel sensor in use.

To disable the CR10 front panel IR sensor.

Cut the jumper lead "A" on the front panel display board as indicated on the drawing. The drawing shows the board as viewed from the front, or the panel side. The jumper lead is actually on the back of the board, which is accessible after removing the CR10 cover.





MODEL ACM-1 AREA CONTROL MODULE FOR USE IN THE CR10 REMOTE CONTROL SYSTEM

The McIntosh CR10 Remote Control System is designed to control up to four separate remote zones. The CR10 is shipped with two area control modules installed for immediate use in two control areas. Open connectors are provided to allow two additional ACM-1 Modules to be installed to control two additional areas for a total of four.

HOW TO INSTALL THE ACM-1

1. Remove the CR10 top cover.
2. Remove the back cover plate indicated for Area three. This will be adjacent to the connectors for Area two which is already in place. The back section of the ACM-1 will mount to the CR10 back panel using these same mounting holes.
3. A hardware package supplied with the ACM-1 includes a front mounting bracket and five self tapping mounting screws. Attach the bracket to the front edge of the ACM-1 module with the two 6-32 by 3/16 inch screws. The bracket mounting position will be the same as on the area two module.
3. Carefully position the ACM-1 into the open space next to the area two card. Secure the back of the module to the CR10 back panel, using two 4-40 by 1/4 inch screws. These screws fit the same holes that were used to hold the cover plate. Secure the front of the module by inserting the 6-32 by 1/4 inch screw through the bracket and into the hole in the chassis bracket that supports the front of the main circuit card.
4. Plug the three ribbon connectors to the appropriate pin connectors on the main card, and the front display card. Follow the same connecting procedure as for the area two card.
5. Follow a similar procedure to install an ACM-1 module for area four.

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MODEL WK-2W and WK-2V

WALL MOUNTED KEYPAD WITH BUILT-IN IR SENSOR

WK-1W (White)

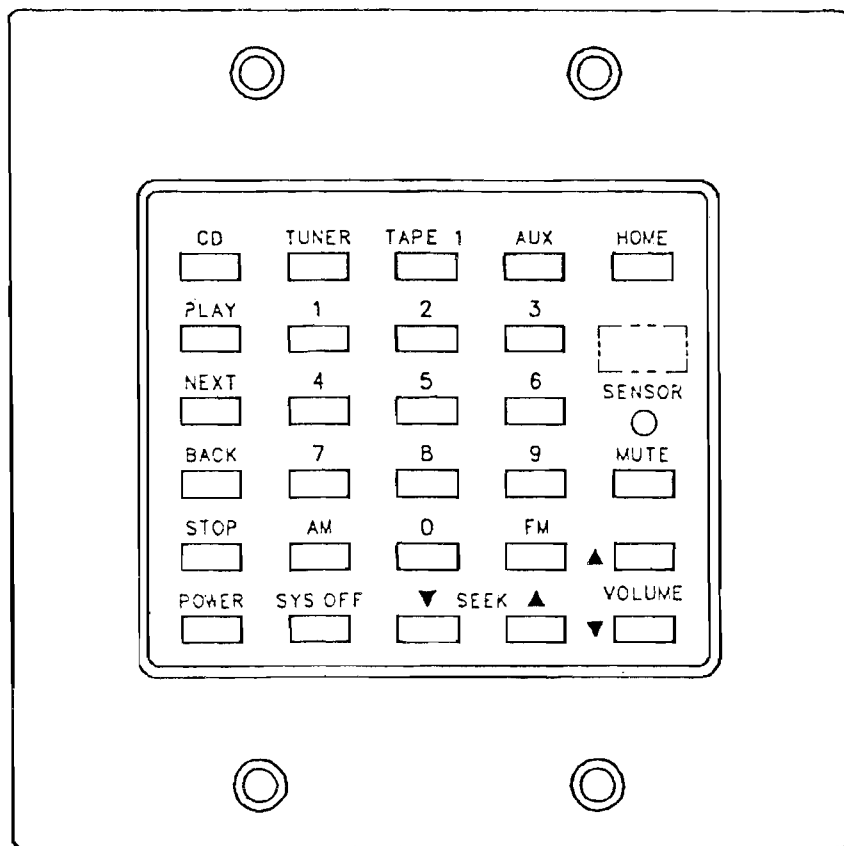
WK-1V (Ivory)

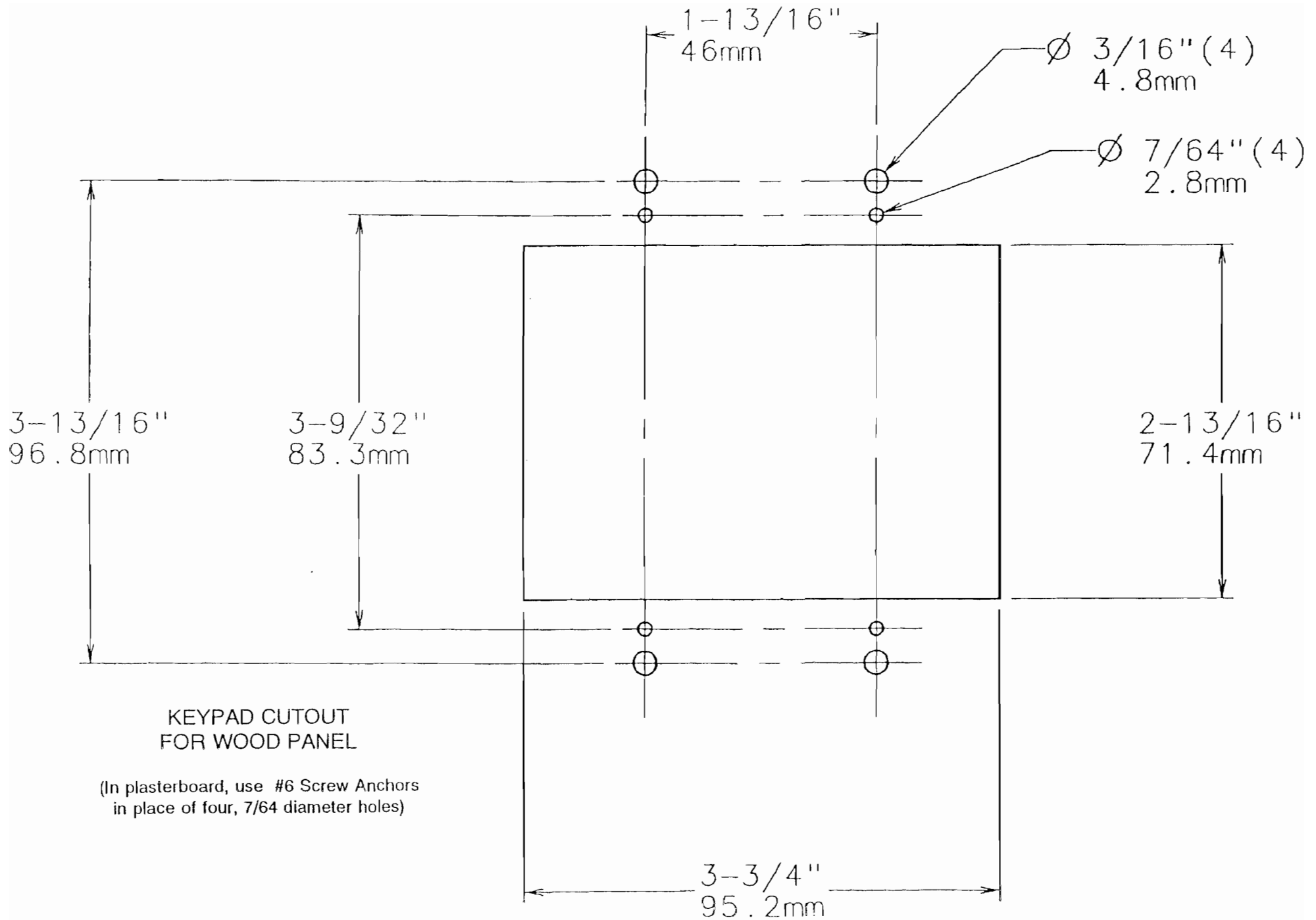
The McIntosh Model WK-2 wall mounted keypad is designed to operate with the McIntosh CR-10 Remote Control System, the C-38 and C-712 System Control Centers, the Model C-39 Audio/ Video Control Center and the MX-130 A/V Tuner Control Center. The WK-2 mounts in a standard two gang wall outlet box.

The WK-2 also includes an IR sensor. You can control Input selection, CD player functions, Tuner functions, volume selection and the Model HC-1 Home Control Module functions from a remote location. You can use either the keypad pushbuttons, or aim a hand held remote controller toward the keypad IR sensor.

An LED on the WK-2 illuminates when that area is turned on and ready for operation. If the area is muted, the LED blinks.

The WK-2 has a standard coax connector, and can be used with either RG6 or RG59U coax cable up to 300 feet from the main unit.







REMOTE CONTROL ACCESSORIES

R649 IR SENSOR

The R649 is a wall mounted IR sensor that fits in a single gang wall switch box. It includes a RED LED that indicates when the area is ON, and blinks when the area is muted. Connect the R649 to the master control unit with a single RG6 or RG59U coax cable.

WK-2W (White), WK-2V (Ivory) WALL MOUNTED KEYPAD

The WK-2 is a wall mounted keypad that fits into a standard two gang wall switch box. The WK-2 has a built-in IR sensor with a RED LED to indicate when the area is ON, and blinks when the area is muted. Program selections and functions can be controlled by either pushing the WK-2 pushbuttons, or aiming a McIntosh Remote Controller toward the WK-2 built-in IR sensor. Connect the WK-2 to the master control unit with a single RG6 or RG59U coax cable.

HC-1 HOME CONTROLLER

The HC-1 Home Controller includes 13 relays that will switch low voltage control signals that can in turn operate accessory equipment used with a McIntosh Remote Control System. Examples could be lights or a viewing screen motor. Four of the relays turn on in a 1/4 second delay sequence.

RCT-1 REMOTE CONTROL TRANSLATOR

The RCT-1 is a learning device that allows a McIntosh Remote Controller or Keypad to operate compatible Brand X accessory components. Programming is done by using both the McIntosh Remote Controller and the accessory controller transmitting IR data to the RCT-1 input sensor. Each accessory component to be controlled must have an R826 Low Power IR Emitter placed in front of its IR sensor, and connected to the appropriate RCT-1 Data port. The RCT-1 can accommodate Eight separate accessory components, and 20 commands for each.

RCT-2 REMOTE CONTROL TRANSLATOR (Designed to be used with the MX118 and C712)

The RCT-2 is a learning device that allows a McIntosh Remote Controller or Keypad to operate compatible Brand X accessory components. Programming is done by using both the McIntosh Remote Controller and the accessory controller transmitting IR data to the RCT-2 input sensor. Each accessory component to be controlled must have an R826 Low Power IR Emitter placed in front of its IR sensor, and connected to the appropriate RCT-2 Data port. The RCT-2 can accommodate Six separate accessory components, and 20 commands for each.

R826 LOW POWER IR EMITTER (Replaces R667)

The R826 is a low power emitter, (flasher), that accepts data from an RCT-1 or RCT-2 Remote Control Translator and converts it to IR signals to send to a compatible brand X remote control product. The emitter must be placed or fastened in front the IR sensor on the panel of the brand X product. This allows a McIntosh hand held remote controller programmed by the RCT-1 or RCT-2 to control compatible brand X products.

The R826 can also be used with the R657 Repeater to control Brand X products with their own remote controllers transmitting to a McIntosh IR sensor.

MSI-1 MULTIPLE UNIT SERIAL INTERFACE

The MSI-1 allows a second McIntosh Tuner, a second McIntosh CD Player and 12 different Nakamichi tape deck models to be controlled by a McIntosh Remote Control System. Either the McIntosh hand held controller or the keypad can be used for the control functions.

PC-1 POWER CONTROLLER (Used only with CR10)

The PC-1 has 14 AC Outlets that are controlled by the CR10. Four outlets are for individual area power amplifiers, and turn on only when the specific area is turned on. Five switched outlets are for accessory audio equipment and turn on whenever the CR10 receives a PROGRAM command. Two switched outlets are for Video accessory equipment and turn on whenever VIDEO is selected for any area. Three unswitched outlets remain on as long as the main PC-1 AC power cord is connected to a live AC wall outlet.

Built-in McIntosh Surge Protectors and RFI filtering protect any equipment connected to the PC-1.

PC-2 POWER CONTROLLER

The PC-2 has 14 AC outlets. Seven of the outlets are switched, and can be controlled by any McIntosh Control Center or preamplifier. The seven switched accessory outlets turn on first. Approximately 1/2 second later, each of the four Power Amplifier outlets turn on in 1/2 second delayed sequence. This prevents a large instantaneous current inrush that could occur if four power amplifiers were turned on simultaneously. Three unswitched outlets remain on as long as the PC-2 main AC power cord is connected to a live AC wall outlet. Control is achieved by connecting the PC-2 AC control cable to the switched AC outlet on the accessory component, with the heavy PC-2 AC cable connected to a live AC wall outlet.

Built-in McIntosh Surge Protectors and RFI filtering protect any equipment connected to the PC-2. LED power indicators are included for the switched outlets, the unswitched outlets and each of the four power amplifier outlets.

R612A POWER RELAY

The R612A AC Power Relay has seven AC outlets. Six of the outlets are switched, and can be controlled by any McIntosh Control Center or preamplifier. One outlet is unswitched and stays on as long as the R612A AC power cord is connected

to a live AC wall outlet. Control is achieved by connecting the R612A AC control cable to the switched AC outlet on the accessory component, with the heavy R612A power cord connected to a live AC wall outlet. Built-in McIntosh Surge Protectors and RFI filtering protect any equipment connected to the PC-2.

The R612 Power Relay is similar to the R612A, but has a total of only six switched outlets and no unswitched outlet.

R657 INFRARED REPEATER

The R657 Infrared Repeater allows you to control brand X components, using their remote controllers transmitting to a McIntosh Remote Control System sensor. The Brand X IR signals are reradiated to the Brand X units by placing an R826 Low Power Emitter in front of the Brand X IR Sensor. Two Brand X components can be controlled by Data connections. An array of brand X components can be controlled by using an R668 Flood IR Emitter.

R668 FLOOD EMITTER

The R668 Flood Emitter operates with the R657 Infrared Repeater to control a whole array of Brand X products using their remote controllers transmitting to a McIntosh Remote Control System sensor. The R668 can transmit or flood IR signals to an area six feet high, six feet wide and at a distance of up to 20 feet.

R650 CABLE GROUND ISOLATOR

The R650 is an RF coupling device that passes TV, FM and Cable signals, but blocks DC and 60Hz voltages. This prevents a possible audio ground loop that could produce hum when an existing coax cable is also used for McIntosh IR signals.

R615A TV SIGNAL AND DC CONTROL SPLITTER

The R615A allows an existing coax video distribution cable system to be used to transmit remote IR signals without interference. Two R615A units are required, with one at each end of the existing cable.

The R615A isolates the DC IR control voltages from other equipment or antennas connected to the existing cable. The R615A has negligible insertion loss.

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CR10 REMOTE CONTROL SYSTEM WHAT IT CAN DO AND HOW IT OPERATES

INTRODUCTION

The McIntosh CR10 Remote Control system has been designed as a control center for a full featured audio and video entertainment system. The final form of the CR10 and its associated accessories is the result of nearly five years accumulation of information from both dealers and consumers. A remote control system was needed that had a wide range of operating capabilities, but also would be easy for the owner to understand and use.

A brief description of the CR10 and the optional accessories will give you information on how to create an ideal remote control system. McIntosh dealers' experience with custom audio/video systems has shown that each installation usually will be different, since it is designed to satisfy each client's particular personal needs.

Since the dealer will normally do the system installation, the CR10 Owner's manual makes only minimal reference to hookups and connections. The manual includes explanations of the functions of the CR10 and HR10 pushbuttons, as well as area programming.

The operating instructions involving optional accessories such as the HC-1 Home Controller will vary widely depending on the installation. There are two blank pages provided in the Owner's Manual to list the various capabilities of a specific system and any special operating instructions that may be necessary.

CR10 BASIC UNIT

The CR10 mechanical unit is based on the standard 5 3/8 inch high, by 17 1/2 inch wide front panel. The new 17 1/2 inch panel was originally designed to accommodate the needs of the MCD7008 CD changer mechanism, and is the new standard width for all future McIntosh products. (The MC1000 Power Amplifier and its companion models have an entirely separate size and style configuration.)

The CR10 front panel is the familiar "Classic McIntosh" all glass style, with all nomenclature illuminated. It will harmonize perfectly with other McIntosh products used in a system. The front panel pushbuttons and displays provide area programming as well as indications of the programming and volume levels.

CR10 OPERATING FEATURES

FOUR SEPARATE AREAS CAN BE CONTROLLED

A CR10 is shipped with two area control modules installed, making it ready, out of the carton, to control two separate areas. Usually Area One will be referred to as the Main or Home Area, and Areas Two, Three and Four as Remote. One HR10 hand held remote controller is also included.

All CR10 units have an ACM-2 Area Control Module installed for Area One, and an ACM-1 Module for Area Two. To bring the area control to a total of four, two additional ACM-1 Modules must be added. The ACM-2 Module used for Area One, has the addition of a pair of fixed level outputs on the rear panel which are labeled TAPE OUT.



MODEL RCT-1 REMOTE CONTROL TRANSLATOR

The McIntosh Model RCT-1 Remote Control Translator is a learning device. This allows you to operate both audio and video functions of other brand remote controlled accessories using a McIntosh hand held remote controller transmitting to a McIntosh IR sensor. Not all accessory programmed functions can be controlled by a McIntosh WK-1 keypad.

The RCT-1 is designed to operate with a McIntosh C39, MX130 and the CR10. It requires only a single connection from the SUM or UNSWITCHED Data ports on the above models to the RCT-1 DATA input. Each of the accessory components that are to be controlled will require a McIntosh R826 IR emitter to be placed in front of their IR sensor. The emitter is then connected to the appropriate data port on the RCT-1.

The RCT-1 has memory for 8 different accessories. These are labeled SAT (Satellite), TV, LV (Laser Vision), VCR1, VCR2, CD2, TAPE1 and PH/Aux (Phono\Auxiliary). These inputs correspond to those available for all three of the listed McIntosh models.

Up to 20 separate operating functions may be programmed for each input. The functions are numbers 0 through 9, SEEK UP, SEEK DOWN, REVIEW, ENTER, PLAY, NEXT, BACK, STOP, ACC (Accessory) OFF and ACC ON.

A total of 160 codes can be stored in the RCT-1 Random Access Memory. A lithium backup cell provides up to one year memory protection in case the RCT-1 power cord is unplugged.

Programming the RCT-1 is quite easy, and is accomplished with a McIntosh hand held controller and the other brand controller transmitting directly to the sensor on the RCT-1.

HOW TO CONNECT THE RCT-1

1. Connect the RCT-1 AC power cord to an AC receptacle that is always ON, to avoid unnecessary drain on the backup memory Lithium battery. This also allows you to remotely control an accessory component when the main McIntosh system is turned off.

2. Connect a cable from the RCT-1 DATA port to the appropriate data output on the McIntosh Control System being used.

*** CR10: Use the UNSWITCHED DATA OUT Coax connector.

*** C39\MX130: Use the SUM DATA OUTPUT jack.

3. A McIntosh R826 IR emitter must be placed near and aimed toward the receiving IR sensor of every accessory component programmed with the RCT-1:

The cable must be long enough to reach from the accessory component to the corresponding data port on the RCT-1.

HOW TO PROGRAM THE RCT-1

All programming functions of the RCT-1 require only the RCT-1, a McIntosh Hand Held Remote Controller and the remote controllers for the accessory equipment being used. An RCT-1 can be programmed at another location and then installed in the system for immediate use.

PROGRAMMING SETUP

1. Connect the RCT-1 AC power cord to an AC outlet. .
2. Place the McIntosh Hand Held Remote and the Accessory remote, side by side on a flat surface, 6 to 8 inches from, and aiming at the RCT-1 sensor window. Do not move either controller during the actual programming process.
3. Press the LEARN button on the RCT-1. The LEARN LED will start to flash on and off.
4. Press the button on the McIntosh Controller for the Input you desire. The available inputs are SAT (Satellite), TV, LV (Laser Disc), VCR 1, VCR 2, CD 2, Tape 1 and PH/AUX.
 - *** The corresponding Input LED on the RCT-1 will light.
 - *** The LEARN LED will continue to flash.
5. Press the pushbutton on the McIntosh Controller for the desired function you wish to program.
 - *** The LEARN LED stops flashing and stays on continuously.

Be careful to press controller buttons only once. If the button is pushed more than once, the proper code will not be stored. If this happens, the operation must be cleared, and repeated properly.

6. Press the button on the Accessory Remote Controller for the function that is to be performed by the McIntosh Controller. Do not move the controller during this process and push the button only once.
 - *** If programming is successful, both the LEARN LED and the STORE LED will flash ON and OFF for a few seconds.
 - *** The STORE LED will then turn off.

 - *** If the programming is not successful and the code cannot be learned by the RCT-1, both the LEARN LED and the ERROR LED will flash for a few seconds. The ERROR LED then turns off.

7. Repeat Steps 4 and 5 for all the functions you wish to control for the selected unit and input. As many as 20 functions can be programmed.

8. To program for different accessory components and inputs, repeat steps 3, 4 and 5.

HOW TO CLEAR A SPECIFIC PROGRAMMED CODE

1. Press the LEARN button.
*** The LEARN LED starts to flash.
2. Press the McIntosh Controller button to select the input for the function you wish to clear. (Described in Step 2 above).
*** The LEARN LED continues to flash.
*** The selected Input LED turns on.
3. Press the button on the McIntosh controller for the function you wish to clear.
*** The LEARN LED stops flashing and stays ON.
4. Press the LEARN button.
*** The LEARN LED, STORE LED and ERROR LED will all flash for a few seconds.
*** The STORE LED and the ERROR LED will turn off and the LEARN LED continues to flash.
5. Repeat steps 2, 3 and 4 for any other function programming you wish to clear or erase.
6. Press the LEARN button again to cancel the clear or erase mode.

HOW TO ERASE OR CLEAR ALL RCT-1 PROGRAMMED FUNCTIONS

1. Remove the RCT-1 AC power cord from the AC outlet.
2. Press and hold the LEARN button. While holding the LEARN button, replace the RCT-1 AC power cord back into the live AC outlet, and then release the LEARN button.

This operation must be performed whenever the lithium backup memory battery is replaced. All function programming must then be done again.

PROGRAMMING EXAMPLE

Here is an example of how to program a PLAY command for a VCR connected to the VCR1 input on a Control Center..

1. Place the McIntosh Remote Controller and the VCR Remote Controller side by side, 6 to 8 inches from, and aimed at the RCT-1 sensor window.
2. Press the LEARN button on the RCT-1. The LEARN LED will start flashing.

3. Press the VCR1 button on the McIntosh Controller. The VCR1 input LED will light on the RCT-1.
4. Press the PLAY button on the McIntosh controller. The LEARN LED will stop flashing and stay on continuously.
5. Press the PLAY button on the VCR controller. The STORE LED will flash for approximately 2 seconds to indicate the PLAY command has been memorized. The LEARN LED will start flashing again.
6. Repeat steps 4 and 5 to program up to 20 operating commands for the VCR.
7. When the VCR1 programming is finished, press the LEARN button again to cancel the programming mode. The LEARN LED will stop flashing and turn off. The RCT-1 input LED will always turn on for the input you select.
8. If the other brand code cannot be learned by the RCT-1, the ERROR LED will flash for approximately 2 seconds to indicate that programming did not occur.

SPECIAL NOTE:

THE RCT-1 CAN LEARN ONLY SINGLE-SHOT (SHORT) INFRARED COMMANDS. CONTINUOUS COMMANDS, SUCH AS FOR A VOLUME CONTROL, ARE NOT COMPATIBLE WITH THE RCT-1.

ACCESSORY COMPONENTS WITH ULTRASONIC, VARIABLE FREQUENCY OR MULTIPLE-COMMAND REMOTE CONTROLS ARE NOT COMPATIBLE WITH THE RCT-1.

McIntosh engineering has made every effort to program the RCT-1 software so most major brands of remote control products can be accommodated. If you have questions on any particular product, please contact the McIntosh Engineering department for assistance.

McIntosh Laboratory, Inc, 2 Chambers Street, Binghamton, NY 13903-2699

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MODEL RCT-2 REMOTE CONTROL TRANSLATOR

The McIntosh Model RCT-2 Remote Control Translator is a learning device. This allows you to operate both audio and video functions of other brand remote controlled accessories using a McIntosh hand held remote controller transmitting to a McIntosh IR sensor. Not all accessory programmed functions can be controlled by a McIntosh WK-1 or WK-2 keypad.

The RCT-2 is designed to operate with a McIntosh MX118 A/V Tuner Control Center and the C712 System Control Center. It requires only a single connection from the rear panel SUM Data port to the RCT-2 DATA input. Each of the accessory components that are to be controlled will require a McIntosh R826 IR emitter to be placed in front of its IR sensor. The emitter is then connected to the appropriate data port on the RCT-2.

The RCT-2 has memory for 6 different accessories. These are labeled CD1, CD2, VIDEO/TV, AUX/LV, TAPE/VCR 1 and TAPE/VCR2. These inputs correspond to those available for the two listed McIntosh models.

Up to 20 separate operating functions may be programmed for each input. The functions are numbers 0 through 9, SEEK UP, SEEK DOWN, REVIEW, ENTER, PLAY, NEXT, BACK, STOP, ACC (Accessory) OFF and ACC ON.

A total of 120 codes can be stored in the RCT-2 Random Access Memory. A lithium backup cell provides up to one year memory protection in case the RCT-2 power cord is unplugged.

Programming the RCT-2 is quite easy, and is accomplished with a McIntosh hand held controller and the other brand controller transmitting directly to the sensor on the RCT-2.

HOW TO CONNECT THE RCT-2

1. Connect the RCT-2 AC power cord to an AC receptacle that is always ON, to avoid unnecessary drain on the backup memory Lithium battery. This also allows you to remotely control an accessory component when the main McIntosh system is turned off.
2. Connect a cable from the RCT-2 DATA port to the SUM data output on the McIntosh MX118 or C712.
3. A McIntosh R826 IR emitter must be placed near and aimed toward the receiving IR sensor of every accessory component programmed with the RCT-2. The cable must be long enough to reach from the accessory component to the corresponding data port on the RCT-2.

HOW TO PROGRAM THE RCT-2

All programming functions of the RCT-2 require only the RCT-2, a McIntosh Hand Held Remote Controller and the remote controllers for the accessory equipment being used. An RCT-2 can be programmed at another location and then installed in the system for immediate use.

PROGRAMMING SETUP

1. Connect the RCT-2 AC power cord to an AC outlet. .
2. Place the McIntosh Hand Held Remote and the Accessory remote, side by side on a flat surface, 6 to 8 inches from, and aiming at the RCT-2 sensor window. Do not move either controller during the actual programming process.
3. Press the LEARN button on the RCT-2. The LEARN LED will start to flash on and off.
4. Press the button on the McIntosh Controller for the Input you desire. The available inputs are CD1, CD2, VIDEO/TV, AUX/LV, TAPE/VCR1 and TAPE/VCR2.
 - *** The corresponding Input LED on the RCT-2 will light.
 - *** The LEARN LED will continue to flash.
5. Press the pushbutton on the McIntosh Controller for the desired function you wish to program.
 - *** The LEARN LED stops flashing and stays on continuously.

Be careful to press controller buttons only once. If the button is pushed more than once, the proper code will not be stored. If this happens, the operation must be cleared, and repeated properly.

6. Press the button on the Accessory Remote Controller for the function that is to be performed by the McIntosh Controller. Do not move the controller during this process and push the button only once.
 - *** If programming is successful, both the LEARN LED and the STORE LED will flash ON and OFF for a few seconds.
 - *** The STORE LED will then turn off.
 - *** If the programming is not successful and the code cannot be learned by the RCT-2, both the LEARN LED and the ERROR LED will flash for a few seconds. The ERROR LED then turns off.

7. Repeat Steps 4 and 5 for all the functions you wish to control for the selected unit and input. As many as 20 functions can be programmed.
8. To program for different accessory components and inputs, repeat steps 3, 4 and 5.

HOW TO CLEAR A SPECIFIC PROGRAMMED CODE

1. Press the LEARN button.
*** The LEARN LED starts to flash.
2. Press the McIntosh Controller button to select the input for the function you wish to clear. (Described in Step 2 above).
*** The LEARN LED continues to flash.
*** The selected Input LED turns on.
3. Press the button on the McIntosh controller for the function you wish to clear.
*** The LEARN LED stops flashing and stays ON.
4. Press the LEARN button.
*** The LEARN LED, STORE LED and ERROR LED will all flash for a few seconds.
*** The STORE LED and the ERROR LED will turn off and the LEARN LED continues to flash.
5. Repeat steps 2, 3 and 4 for any other function programming you wish to clear or erase.
6. Press the LEARN button again to cancel the clear or erase mode.

HOW TO ERASE OR CLEAR ALL RCT-2 PROGRAMMED FUNCTIONS

1. Remove the RCT-2 AC power cord from the AC outlet.
2. Press and hold the LEARN button. While holding the LEARN button, replace the RCT-2 AC power cord back into the live AC outlet, and then release the LEARN button.

This operation must be performed whenever the lithium backup memory battery is replaced. All function programming must then be done again.

PROGRAMMING EXAMPLE

Here is an example of how to program a PLAY command for a VCR connected to the TAPE/VCR1 input on a Control Center.

1. Place the McIntosh Remote Controller and the VCR Remote Controller side by side, 6 to 8 inches from, and aimed at the RCT-2 sensor window.
2. Press the LEARN button on the RCT-2. The LEARN LED will start flashing.

3. Press the TAPE1 button on the McIntosh Controller. The VCR1 input LED will light on the RCT-2.
4. Press the PLAY button on the McIntosh controller. The LEARN LED will stop flashing and stay on continuously.
5. Press the PLAY button on the VCR controller. The STORE LED will flash for approximately 2 seconds to indicate the PLAY command has been memorized. The LEARN LED will start flashing again.
6. Repeat steps 4 and 5 to program up to 20 operating commands for the VCR.
7. When the VCR1 programming is finished, press the LEARN button again to cancel the programming mode. The LEARN LED will stop flashing and turn off. The RCT-2 input LED will always turn on for the input you select.
8. If the other brand code cannot be learned by the RCT-2, the ERROR LED will flash for approximately 2 seconds to indicate that programming did not occur.

SPECIAL NOTE:

THE RCT-2 CAN LEARN ONLY SINGLE-SHOT (SHORT) INFRARED COMMANDS. CONTINUOUS COMMANDS, SUCH AS FOR A VOLUME CONTROL, ARE NOT COMPATIBLE WITH THE RCT-2.

ACCESSORY COMPONENTS WITH ULTRASONIC, RF VARIABLE FREQUENCY OR MULTIPLE-COMMAND REMOTE CONTROLS ARE NOT COMPATIBLE WITH THE RCT-2.

McIntosh engineering has made every effort to program the RCT-2 software so most major brands of remote control products can be accommodated. If you have questions on any particular product, please contact the McIntosh Engineering department for assistance.

McIntosh Laboratory, Inc, 2 Chambers Street, Binghamton, NY 13903-2699



MODEL PC-1 POWER CONTROLLER

The McIntosh Model PC-1 AC power controller has been designed to interface with the McIntosh Model CR10 Remote Control system. A total of 14 AC outlets are provided to allow AC power switching to any accessory unit that may be used in a CR10 system. Two DIN POWER CONTROL connectors are provided, labeled IN and OUT.

PROGRAMMED AC OUTLETS

1. Four Switched outlets are provided for four remote zone power amplifiers. When a particular remote zone is turned on by the CR10, the matching zone AC outlet will turn on to power that specific amplifier. During a power up of all zones the four power amplifier outlets turn on sequentially with approximately one quarter second delays. This prevents a high power inrush current during turn on.

2. Five switched outlets are provided for audio accessory equipment, which usually will be for program sources. When the CR10 receives a PROGRAM command, all five of these outlets turn on.

3. Two switched outlets are provided for Video accessory equipment. If Video is selected for a given area, these two outlets turn on.

4. Three Unswitched outlets are provided that remain on as long as the PC-1 AC power cord is connected to a live AC outlet. These outlets can be used for accessories such as clocks, or Video recorders that may be used to record TV broadcasts when the main CR10 system is turned off.

5. A POWER CONTROL OUT DIN connector is provided to extend the control to a second PC-1 or the MC7108 Power Amplifier.

SPECIAL FEATURES

Built in McIntosh Surge Protectors and RFI (Radio Frequency Interference) filtering help protect any equipment connected to the PC-1. The potential for any damage due to AC line voltage spikes or surges is minimized. DC relays are used throughout the PC-1 for quiet reliable operation.

HOW TO CONNECT

1. Connect the main heavy duty power cable of the PC-1 to an always live AC wall outlet of at least 15 ampere current rating.

2. Connect the DIN cable from the PC-1 POWER CONTROL IN connector to the CR10 back panel POWER CONTROL connector. If a second PC-1 is being used connect a DIN cable from the first PC-1 POWER CONTROL OUT to the second PC-1 POWER CONTROL IN.

3. Connect all amplifier and accessory AC power cables to the appropriate AC outlets on the PC-1.

***THE TOTAL POWER DEMAND FROM ALL THE AC OUTLETS ON EACH PC-1
MUST NOT EXCEED 1440 WATTS***



MCINTOSH MODEL PC-2 POWER CONTROLLER INSTRUCTIONS

The McIntosh Model PC-2 Power Controller provides automatic heavy duty AC power control for use with any system. A total of 14 AC outlets are included.

The PC-2 has two AC power cords. There is a high current capacity 14 gauge supply cord and a lighter gauge signal control cord. The high current power cord connects directly to a wall outlet. The signal control cord connects to a switched AC outlet of the accessory component being used, which could be a preamplifier, receiver or similar unit. Whenever the accessory unit is turned on and AC power flows to the signal control cable, DC relays turn on the PC-2 outlets.

There are four AC outlets for power amplifiers. These outlets turn on sequentially, in approximately 1/2 second intervals. This prevents high current inrush during turn on.

Seven switched outlets are provided for accessory audio or video equipment. These outlets will turn on simultaneously.

Three unswitched outlets are included that remain on as long as the main power cable is connected to a live AC outlet. These may be used for accessories such as a clock or a video recorder programmed to record when the main system is turned off.

Built in McIntosh surge protectors and RFI (Radio Frequency Interference) filtering help protect any equipment connected to the PC-2 from potential damage due to line voltage spikes or surges. DC relays insure quiet operation.

HOW TO CONNECT

1. Connect the heavy MAIN cable to an always live AC wall outlet of at least 15 amperes current rating.
2. Connect the smaller CONTROL cable to the switched AC outlet of the accessory component such as a preamplifier or receiver.
3. Connect accessory AC power cables to the appropriate AC outlets.

**THE TOTAL POWER DEMAND FROM ALL THE PC-2 OUTLETS
MUST NOT EXCEED 1440 WATTS**

McIntosh

HC-1 HOME CONTROLLER

The McIntosh Model HC-1 Home Controller is designed to operate with the CR10 Remote Control System, the C39, MX130 and MX118 Control Centers. The HC-1 can control low voltage circuits that in turn can control AC power to many different system accessories such as lights, drapery motors or viewing screen motors.

ACCESSORY EQUIPMENT CONTROL

Push the HOME button on the HR10 Remote Controller and a data switch in the CR10 directs commands to the HC-1. The 1 through 0 buttons are used to command 13 relays.

SIX PROGRAMMABLE RELAYS

Buttons 1 through 6 refer to relays 1 through 6 that are programmable. Any of these relays can be set for PUSH ON - PUSH OFF, or MOMENTARY (Push and Hold) operation. There are six small DIP switches that control the operation of these relays. The ON position of the DIP switch corresponds to the MOMENTARY mode, and the OFF position to the PUSH ON - PUSH OFF mode.

The HC-1 will be shipped with the DIP switches in the OFF position.

THREE FIXED OPERATION RELAYS

Buttons 7, 8 and 9 on the HR10 control relays 7, 8 and 9 that are fixed for PUSH ON - PUSH OFF operation.

FOUR SEQUENCED OPERATION RELAYS

Press the 0 button on the HR10 and relays 0A, 0B, 0C and 0D operate in sequence. There is approximately 1/4 second delay between operation of each of these four relays. For example, if four power amplifiers are connected through these relays, the momentary inrush current will be reduced.

INTERNAL AND EXTERNAL POWER SUPPLY CAPABILITIES

A 12 volt DC, 1.5 ampere power supply is built into the HC-1 to control operation of compatible external accessories.

Connecting pins are provided for an external 24 volt AC, 1.5 ampere, or other similar external power supply to control external accessories.

KEYPAD OPERATION

Up to eight WK-2 Keypads may be connected directly to the HC-1. This allows operating the HC-1 from other areas without using the CR10 or Preampfier hand held remote controllers. Two keypad connectors are provided on the HC-1, each of which can handle up to four keypads.

SPECIAL WARNING

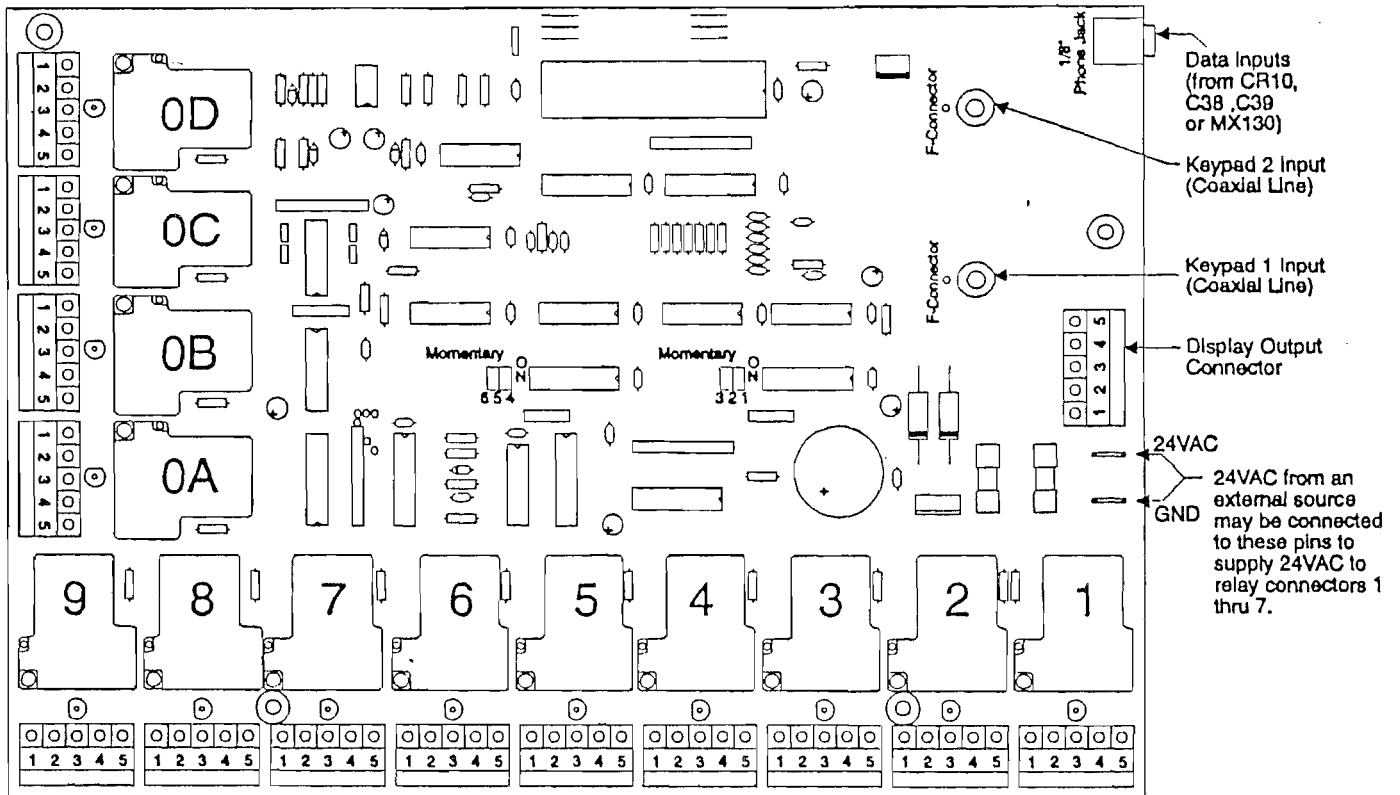
The HC-1 has relays, connectors, transformers and related AC line components that have been UL and CSA approved. The HC-1 has heavy duty 120 Volt AC relays that can handle up to 15 amperes.

DO NOT WIRE 120 VOLTS DIRECTLY TO THE HC-1 RELAYS.

The HC-1 is designed to switch only low voltage control circuits.

IN ALL CASES, THE INSTALLER IS RESPONSIBLE FOR COMPLYING WITH ANY ELECTRICAL CODES THAT MAY APPLY.

McINTOSH HC-1 HOME CONTROLLER



RELAY CONNECTOR NOMENCLATURE

CONNECTOR	PIN
1 THRU 7	1) Ground 2) 12 volts DC 3) 24 volts AC (from outside source) 4) Relay (common) 5) Relay (normally open)
8 THRU 0D	1) Ground 2) 12 volts DC 3) Relay (normally open) 4) Relay (common) 5) Relay (normally closed)

DISPLAY OUTPUT CONNECTOR

To be used with McIntosh products available in the future.	1) Ground 2) 8 volts AC output 3) Keypad 1 input 4) Reset 5) Data output
--	--

DIPSWITCHES FOR RELAY 1 THRU 6

Unit shipped with dipswitches in the OFF position.)
 ON: Relay Contacts, Momentarily On
 OFF: Relay Contacts, Push On; Push Off

The numbered markings for the dipswitches on this drawing indicate the relay number affected. The numbers 1, 2 and 3 on the dipswitches are not relevant.

McIntosh

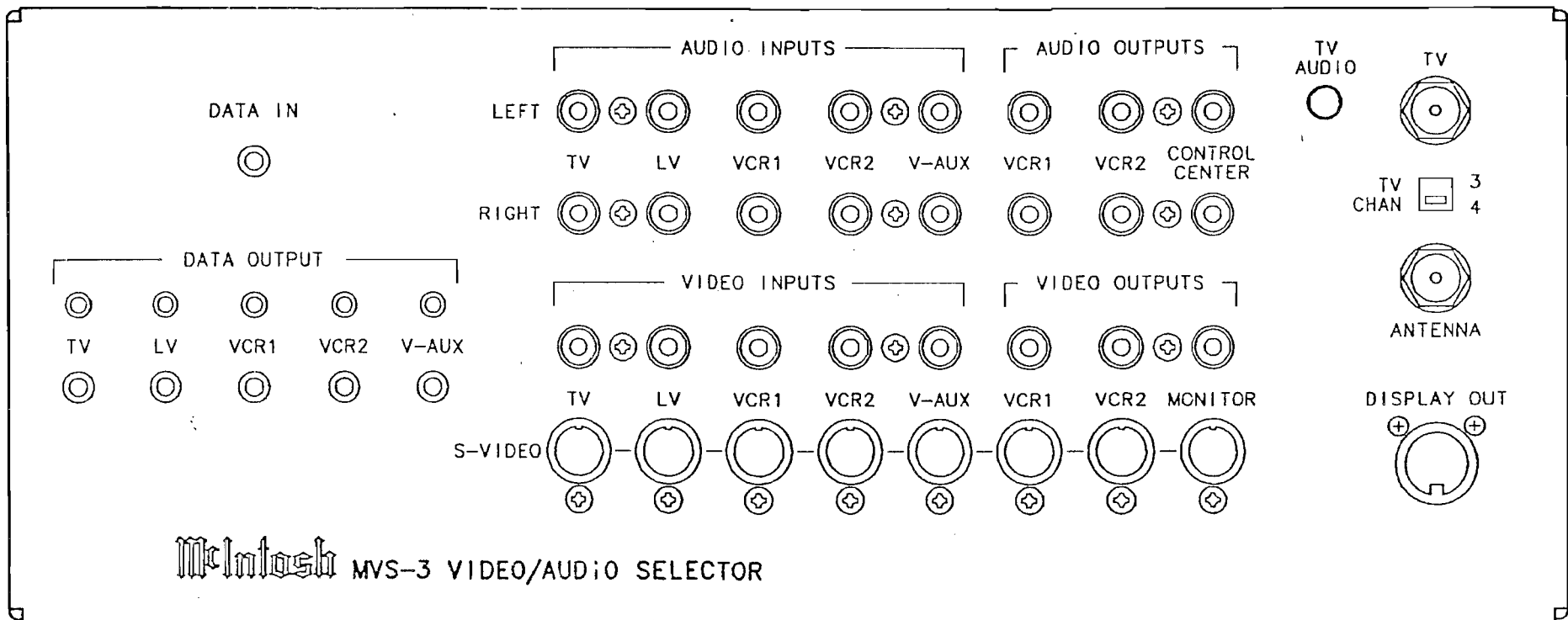
MVS-3 AUDIO/VIDEO SELECTOR

The McIntosh Model MVS-3 Audio/Video Selector is designed to operate with the McIntosh CR10 Remote Control System and the C38 System Control Center.

The MVS-3 functions are accessed by pressing the VIDEO button on a hand held remote controller. Data is fed to the MVS-3 Data Input jack from the Video Data Output jack on a CR10, C38 or other similar McIntosh product. The MVS-3 provides Stereo Audio, Video and S Video switching for five input source signals. Three Audio and Video Outputs, five Data outputs and one Data input are also included. These switching functions are in addition to the normal switching on a remote control center.

McIntosh Laboratory, Inc. 2 Chambers St. Binghamton, NY 13903-2699 607-723-3512

039-900





AREA CODE 607 723-3512

McINTOSH LABORATORY INC.
2 CHAMBERS STREET
BINGHAMTON, N.Y. 13903-2699

HELP

TO: All McIntosh Dealers and Installers
FROM: McIntosh Engineering
DATE: March 16, 1994
RE: LOSING YOUR MEMORY

Various areas of the world are subject to frequent AC power line interruptions due to weather, accidents and other conditions. As many of you know, this is a problem for electronic equipment using microprocessors. Clocks stop, VCRs and TVs lose their program memory and sometimes microprocessors "Lock Up" and have to be reset.

Steve Brakke of Cooper for Stereo, Clearwater, FL has come up with a simple low cost solution. Put a UPS, Uninterruptible Power Supply, in the AC power line.

Power interruption for Personal Computers can be a very serious problem so the PC industry has come up with low cost UPS's. We purchased an American Power Conversion BK250B, a 250VA supply, from our local computer store for \$109.00 and hooked it up to a McIntosh MX130. With the MX130 ON power was supplied for 45 minutes after the AC power line was disconnected. When the MX130 was in standby mode, front panel power switch OFF, it ran for several hours. Since most power line failures are only a few minutes long, your customer does not have to worry about losing Surround Sound Calibration or Preset Station memory.

Thanks for the great idea Steve.



AREA CODE 607 723-3512

McINTOSH LABORATORY INC.
2 CHAMBERS STREET
BINGHAMTON, N.Y. 13903-2699

HELP

TO: All McIntosh Dealers and Installers
FROM: McIntosh Engineering
DATE: March 29, 1994
RE: PICTURE PERFECT VIDEO

The yellow RCA jacks on the rear of AUDIO/VIDEO equipment make it very tempting to use normal audio cables for VIDEO signals. This can seriously affect the quality of the whole system by becoming THE WEAKEST LINK in the VIDEO CHAIN. McIntosh has devoted a great deal of engineering time and effort to the design of superior VIDEO source switching. It is a matched 75 ohm low loss system but its performance can be compromised by the use of inferior cables. A good cable must have an impedance of 75 ohms, have low loss and be very well shielded. Sounds expensive. Not so.

The installation crew at Elliott Fishkin's Innovative Audio in Brooklyn, NY told us of a way to make CUSTOM VIDEO CABLES at very low cost.

For each cable purchase two adaptors that accept a male "F" connector and plug into an RCA phono jack. Use one for the video source and one for the preamp or control center. Measure the distance between the two and cut an appropriate length of RG-6U coax. The coax is commonly used for TV ANTENNA/CABLE connections. Crimp a male "F" connector on each end of the coax and you have the ideal VIDEO CABLE.

It has a 75 ohm impedance, very low loss at video frequencies and is double shielded.

Thanks Greg and Robert for the great idea.

McIntosh

HOME THEATER with DOLBY PRO LOGIC™ and HOME THX® AUDIO

The most exciting new concept in home entertainment is the Home Theater. A Home Theater combines the newest high fidelity surround sound audio concepts with the high quality video reproduction of the latest big screen TV monitors. All the excitement of the special audio and video effects of today's action movies are now possible in your own home using a laser video disc player or VCR as a source.

All movies produced by major film companies have sound tracks that are encoded with Dolby Surround™ Sound. The decoding process is called Dolby Pro Logic™ and results in four separate sound tracks which are Left Front, Center Front, Right Front, and Surround. This concept is the heart of the Home Theater audio experience.

Lucasfilm Ltd. has developed a process for enhancing the reproduction of Dolby Pro Logic™ movie sound tracks by adding additional signal processing to all the Dolby decoded sound tracks. This process is called Home THX Audio. Home THX Audio was developed as a result of the extensive experience that Lucasfilm Ltd. has had in improving the standards of reproduced sound in movie theaters. This led to examination, then improvement of the whole movie sound chain, from film dubbing stage to first run movie houses, and now to home theater installations. Lucasfilm Ltd. has conducted extensive research on the best and most effective way to reproduce a movie sound track in a home theater system with a realism as close as possible to that heard by the studio sound engineers.

McIntosh Laboratory has introduced a new series of electronics and loudspeakers dedicated to the Home Theater concept. These new McIntosh products are also dual purpose. Not only do they accurately reproduce movie sound tracks, but also provide traditional McIntosh high quality reproduction of two channel stereo audio sources such as the compact disc.

The McIntosh C39, MX130, MC7106 electronics and the HT, Home Theater Series loudspeakers adhere precisely to the Home THX Audio requirements and are Home THX Audio licensed.

Descriptions of Dolby Surround™ sound as decoded by Dolby Pro Logic™, and the addition of Home THX Audio processing will assist you in understanding the home theater concept.

THX is a registered trademark of Lucasfilm Ltd.

DOLBY Surround, Pro Logic and the Double-D Symbol are registered trademarks of Dolby Laboratories Licensing Corporation.

HOME THEATER AUDIO CHANNEL CONFIGURATION WITH DOLBY SURROUND PRO LOGIC™ AND HOME THX AUDIO

Dolby Surround encoded movie sound tracks produce four separate audio signal channels when decoded by the Dolby Pro Logic process. These channels are Left Front, Center, Right Front and Surround Sound. The decoded surround sound signals are mono, but are to be reproduced by a non directional loudspeaker on each side of the listening area. Home THX Audio reproduction further processes all the Dolby Pro Logic decoded signals, including the generation of separate spatially expanded left and right surround signals. THX also specifies that a subwoofer be used. Home THX Audio reproduction requires six separate audio channels and corresponding loudspeakers.

DOLBY PRO LOGIC LEFT FRONT and RIGHT FRONT

These two channels are stereo channels in the traditional sense. The left and right signals provide ambience, depth and spaciousness for reproduction of music and sound from a Dolby Surround stereo movie sound track. The front channels also reproduce similar information from a two channel stereo source such as a compact disc.

DOLBY PRO LOGIC CENTER FRONT

Dolby Surround movie sound tracks are encoded with additional sound channels to increase the realism of the Home Theater experience. The Center channel, which also includes dialog, is reproduced through a loudspeaker placed in the front center location, either below or above the viewing screen. It provides increased intelligibility of movie dialog as well as contributing to the overall sound realism.

DOLBY PRO LOGIC LEFT and RIGHT SURROUND (SIDES)

Dolby Surround movie sound tracks are encoded with a specially processed surround sound signal. When decoded by Dolby Pro Logic processing circuits, the surround sounds produce all types of acoustical information and sound effects that enhance the listening enjoyment of a movie. The Dolby surround sound channel is mono, but it must be reproduced through two separate loudspeakers placed on the left and right walls of the listening area. The surround loudspeakers should radiate sound in a completely non directional pattern, allowing the listener to hear only the sound reflected off the wall surfaces and not directly from the speakers. A loudspeaker with a Dipole radiation configuration is quite effective for this application. Surround sound should appear to be coming from all directions, and must not distract from the direct sound reproduced by the front loudspeakers.

HOME THX AUDIO ENHANCEMENTS

SURROUND CHANNELS

The Home THX Audio circuits further process and convert all the Dolby Pro Logic surround signals, including generation of separate spatially expanded left and right surround signals. This further enhances the surround sound listening experience.

HOME THX AUDIO SUBWOOFER

A subwoofer loudspeaker is designed to reproduce only the lowest audio frequencies, which are essentially non directional. Home THX Audio requirements specify that a subwoofer be used in the home theater system. To meet this requirement, McIntosh has included subwoofer circuits in the C39 and MX130 Control Centers. The Left, Right and Center channel signals are combined and fed through a filter to allow only the Bass frequencies of 80Hz and lower to be fed to the subwoofer channel.

The non directional sound characteristics of a subwoofer allow it to be placed in a wide range of room locations. A well designed subwoofer will reproduce the low frequency music and sound effects present in today's action movie sound tracks with dramatic impact. Using a discretely placed subwoofer also allows the option of using somewhat smaller and less obtrusive front loudspeakers.

McINTOSH HOME THX AUDIO LICENSED ELECTRONIC PRODUCTS

C39 AUDIO/VIDEO CONTROL CENTER MX130 AV TUNER CONTROL CENTER

The MX130 Control Center differs from the C39 in that it includes a built-in AM/FM Stereo tuner. Listed here are just a few of their major features.

1. Six Audio Channels for Home Theater Soundtrack reproduction.
2. Full compatibility for high fidelity reproduction of two channel stereo signal sources such as the compact disc.
3. Built-in Dolby Pro Logic decoding circuits.
4. Add-On McIntosh THX-M Module for Home THX Audio signal processing enhancement of the Dolby Pro Logic decoded signals.
5. Fully remote controlled.
6. Built-in capability for controlling an additional remote audio area.
6. Convenient interconnect capability using a 25 conductor computer type cable to feed all six signal channels and AC power control to a McIntosh MC7106 Six channel power amplifier.
7. Built-in noise generator and switching facilities for volume level calibration of all six surround channels.

MODEL MC7106 SIX CHANNEL POWER AMPLIFIER

The MC7106 includes six power amplifier channels on a single convenient chassis. Listed here are just a few of its major features.

1. 160 watts per channel into the 4 ohm loads of McIntosh HT, Home Theater series loudspeakers, **for a total of 960 watts of power.**
2. 100 watts per channel into 8 ohm loads.
3. All six channels include the McIntosh Power Guard circuit.
4. Front panel LED power level indicators with adjustable illumination, for all six channels.
5. Convenient connector for a single 25 conductor computer type cable to receive all six audio signal channels and AC power control from a C39 or MX130.

McINTOSH HT SERIES, HOME THEATER HOME THX AUDIO LICENSED LOUDSPEAKERS

The McIntosh HT Series loudspeakers have been designed to provide the ultimate in audio reproduction for your McIntosh Home Theater. These loudspeakers are dual purpose, and also provide superb reproduction of two channel audio sources such as the compact disc.

The descriptions of each HT loudspeaker and its function in your McIntosh Home Theater will give added insight in the Home Theater process. The information listed below is taken from the McIntosh HT Series Owner's manual.

HT-1 FRONT LOUDSPEAKERS

Three HT-1 loudspeakers will be used in the Left Front, Center, and Right Front positions. An HT-1 includes two McIntosh 8 inch LD/HP™ woofers and three 1 inch metal dome tweeters in a vertical array.

In line with the Home THX Audio philosophy the HT-1 is designed with controlled vertical directivity due to a specially designed three tweeter vertical array. As a listener moves above or below the plane of the loudspeaker the level of frequencies above 1000 Hz will drop, reducing the amount of mid and high frequency energy that is reflected from floor or ceiling. This feature reduces the room's effect on the sound and assures a more precise stereo image and better dialog intelligibility. The horizontal coverage of the HT-1 is also very broad to allow uniform sound quality across a wide listening area.

The HT-1 includes special crossover circuitry that assures frequency response of the three tweeter array above or below the plane of the speaker will taper off in a very smooth and controlled way. This design provides the desirable controlled vertical directivity, and also allows greater latitude in mounting configuration.

A unique feature of the HT-1 loudspeaker allows it to be installed in either a horizontal or vertical position, and still meet the Home THX Audio requirements. The three tweeters of the HT-1 are mounted on a rotatable panel. This allows the tweeters to be maintained in the vertical array for the desired wide horizontal dispersion and controlled vertical directivity for either cabinet orientation. This feature allows extra versatility in a home theater installation.

The HT-1 is normally shipped with the tweeters aligned for vertical orientation of the loudspeaker cabinet. To change the tweeter orientation for a horizontal cabinet orientation, remove the four phillips head screws that hold the tweeter panel in place, remove the panel, rotate it 90 degrees and replace the screws. The three tweeter array must always be in a vertical configuration.

Usually the left and right front loudspeakers will be installed with their long dimension vertical when placed to the sides of the viewing screen, since this takes less floor space. When used in the vertical configuration, front left and front right loudspeakers should be mounted at listener ear height, with the tweeter array on the side nearest the screen. Because of the reduced vertical directivity, care must be taken to aim the front loudspeakers directly toward the listeners. If they are mounted above or below ear level, the loudspeakers should be aimed up or down as required to face toward the listeners.

When the HT-1 used for the center channel is located under or over the screen, where space is at a premium, it can be placed horizontally to reduce its height to less than 16 inches. The tweeter panel can be easily rotated to maintain the proper vertical tweeter

alignment. This will allow the maximum possible viewing screen size and assure that the center speaker can always be placed near to the screen. The center loudspeaker, either above or below the screen, should be aimed toward the listener's position. As a general rule it is best to aim the loudspeakers upward or downward within 15 degrees of the listener.

In some home theater installations, McIntosh HT-1 front speakers may be placed in custom cabinets surrounding the viewing screen. Care must be taken under such conditions that the cabinets do not degrade the performance of the system. In general, if the loudspeakers are placed as close as possible to the front of the custom cabinets, rather than deeply recessed, the performance will be satisfactory. Grilles placed over the system should be acoustically open with minimal structure near or in front of the system, especially the tweeters. Cloth covered openings should be of acoustically transparent material. Double knit grille cloth is ideal for this application. If the HT-1 factory grilles are not required they can be removed. Slight toe-in of front left and right loudspeakers is still desirable as long as it does not require recessing them more than 3 inches within the cabinet. In extreme cases where ideal mounting can not be achieved, placing absorbing foam such as polyfill around reflecting surfaces or within the cavity may be helpful in keeping cavity resonances within the custom enclosed space to a minimum.

HT-2 SUBWOOFER

The HT-2 is a high output subwoofer optimized for home theater use. Two 12 inch McIntosh LD/HP™ woofers are used, downward firing, in a vented enclosure. An electronic crossover in a C39 or MX130 Control Center routes all frequencies below 80Hz to the appropriate amplifier channel and then to the HT-2 subwoofer.

Because the HT-2 reproduces only low frequencies, it is essentially non directional. This allows extra freedom in positioning the subwoofer in the listening area. For the best results, the subwoofer location should be limited to the front half of the room. Excellent results are possible with the subwoofer placed on the same wall as the screen or along either adjacent wall. Avoid placing the subwoofer close to, or behind the listener.

Since one of the primary benefits of using a subwoofer is the flexibility of room placement, you can experiment with various placements to achieve the desired results. The exact room position of the HT-2 subwoofer will have some effect on its spectral balance. Placement near walls and especially near corners will increase its bass output. Each position will have a different frequency response due to the standing waves and dimensions of the room. The installer with access to a 1/3 octave real time spectrum analyzer can use it to find a good position for the HT-2 in terms of response smoothness and level. It is also possible for two HT-2 subwoofers to be used in the same installation. Not only will this increase output levels for very large rooms, but when two subwoofers are placed in nonsymmetrical room positions, they tend to average out standing waves.

If a spectrum analyzer is available, try both polarities of the amplifier connections to the subwoofer to achieve the desired results. Due to the variations in room acoustics, and the relative distances of a subwoofer and front speakers from the listener, it is impossible to predict which polarity is best. Try both polarities and use the one with the smoothest response from 50 Hz to 100 Hz. The polarity should have no effect above 100Hz.

Sensitive listeners can hear this effect without the benefit of a spectrum analyzer. Choose some music with a heavy and continuous bass line. Have a helper repeatedly reverse the connections to the subwoofer with the listener in the normal listening and viewing area. The polarity with the fuller mid bass or just "more bass", is correct. Readjust the subwoofer level if required. You may find it necessary to experiment with the subwoofer in

several room locations to find the one that works best.

HT-3 SURROUND LOUDSPEAKERS

The McIntosh HT-3 loudspeaker is specifically optimized for surround sound applications. Home THX Audio surround loudspeakers are intentionally designed to create a very diffuse sound field. The HT-3 uses a dipolar radiation pattern to achieve this performance. A dipole loudspeaker radiates sound both forward and backward, with acoustic nulls at the sides. If a dipole loudspeaker is placed such that the listeners are seated within the nulls, they will hear surround sound ***only after it has been randomly reflected off of the room wall surfaces.*** Thus the listener will perceive no specific direction for surround sound. It will seem to come from everywhere. Movie background effects such as street noises, trees rustling, insects in jungle scenes, etc. will ***surround*** the listener from all directions.

The HT-3 achieves this dipolar radiation via independent forward and rearward firing 2-way systems connected in antiphase to assure a cancellation null at right angles. Complete mirror symmetry of forward and rearward firing faces of the HT-3 assure a deep broadband null of all frequencies for any position on the dividing plane of the system. This includes upward and downward elevation angles and allows the HT-3 to be mounted in a variety of heights on the side wall, (or even on the ceiling), as long as the listener is on the dividing plane between left and right halves of the HT-3.

Some listeners may want a less diffuse and more directional effect from their surround loudspeakers. To them, sounds panning off screen, such as jets flying overhead, are more important than the creation of a diffuse sound field. This is perfectly acceptable and can be achieved by mounting the HT-3 loudspeakers such that the listener is not on the null of the system but perhaps 20 degrees forward or backward of the null. The selected volume level of the surround speakers will also play a major role in determining whether the surround effects are obvious or subtle.

In very large installations, more than one pair of HT-3 surround loudspeakers can be used. This would apply in home installations with four or more rows of theater style seating. For such installations install a pair of HT-3 systems in the normal way adjacent to the first seating row. For every third or fourth row behind, install an additional pair. Each additional pair of surround speakers should have its polarity reversed relative to the pair immediately in front. Polarities from the front would be normal, reversed, normal, reversed, etc. Change the polarities by alternating the connections on each pair of speakers, in order, behind the original pair.

CONCLUSION

Care and attention to detail in the setup of your McIntosh Home Theater will result in a system capable of faithful reproduction of music and an exciting recreation of the theater experience. The guidelines presented in this document for Home Theater Loudspeaker setup, adhere as closely as possible to the Home THX Audio requirements. However, you are the one who will be the ultimate judge as to how you want the system to sound. You can follow the suggestions, but you also have the option to make any adjustments or modifications that you may desire.

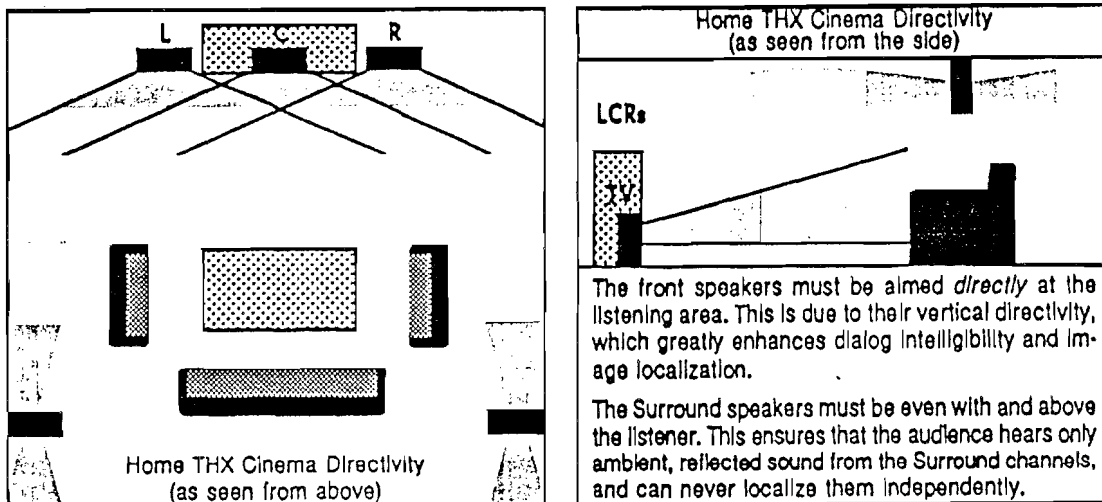
There are also specific volume level recommendations for the electronic portion of a Home THX Audio System. Manuals included with the McIntosh C39 and the MX130 Control Centers, and the HT Series Loudspeakers provide specific setup and calibration information.

You can assemble a complete McIntosh Home Theater System with a THX licensed

C39 or MX130 Control Center, the MC7106 Six channel power amplifier and a set of McIntosh HT series Home Theater loudspeakers. All of these McIntosh products are dual purpose. Clever and innovative engineering design of both the loudspeakers and electronics allow them to give superb reproduction of **both** Home Theater movie sound tracks **and** stereo music.

You may find it both helpful and convenient to take advantage of the technical knowledge and valuable experience of your McIntosh dealer to assist you in creating a McIntosh Home Theater that will provide you the maximum possible enjoyment.

The drawing below is courtesy of Lucasfilm Ltd.





A McINTOSH HOME THEATER SYSTEM

A McINTOSH MULTI-AREA REMOTE CONTROL SYSTEM

USE ALONE, OR IN COMBINATIONS

INTRODUCTION

McIntosh can now provide all the electronics, loudspeakers and accessories necessary to assemble a "McIntosh Quality" Home Theater System. McIntosh can also provide all the electronics, loudspeakers and accessories required to assemble a full featured, multi-area Remote Control System. You can setup each separately, or combine them together to operate as a complete home entertainment system.

Listed below, are descriptions of two different McIntosh Home Theater Systems including loudspeakers. The McIntosh CR10 Remote Control System is also described and how it can be combined with either Home Theater System. Descriptions of all the available McIntosh Remote Control accessories are also included.

McINTOSH HOME THX[®] AUDIO HOME THEATER SYSTEM

**C39 or MX130 AUDIO VIDEO CONTROL CENTER
MC7106, 6 CHANNEL POWER AMPLIFIER
HT SERIES HOME THEATER LOUDSPEAKERS, HT-1, HT-2 and HT-3F/W**

(The products listed above are Home THX Audio Licensed.)

The Home THX Audio System is a licensing program of Lucasfilm Ltd. which defines new standards for accuracy in Home Theaters. THX is a registered trademark of Lucasfilm Ltd.

C39 / MX130

(Home Theater and Stereo)

The C39 Audio/Video control Center and the MX130 A/V Tuner Control Center include all the circuits and features necessary for a complete "McIntosh Quality" Home Theater System. The MX130 A/V Tuner Control Center is identical to the C39, but has the addition of a built-in full featured McIntosh AM/FM Tuner. The C39/MX130 includes built-in Dolby Pro Logic™ processing circuits to decode Dolby Surround soundtracks. Add the optional McIntosh THX-M module to enjoy the Home THX Audio, Lucasfilm, Ltd., enhancements to the Dolby Pro logic decoded signals. The C39/MX130 can be remotely controlled in the Main (Area "A"), and an additional remote audio area "B" can also be controlled.

(Remote Audio Area "B" Control)

Remote Area "B" requires a dedicated stereo power amplifier, a pair of speakers, and a wall IR sensor or keypad. The keypad or sensor connects to the Control Center with a single RG6 or RG59U coax cable. Up to four sensors or keypads can be connected in parallel on each coax cable. The keypad also includes a built-in IR sensor. You can turn on Area "B", (only in Area "B"), select any of the audio program sources connected to the C39/MX130 and adjust volume, independently from any selections made in the main Area "A".

The optional McIntosh RCT-1 Remote Controlled Translator can also be added to the C39/MX130. The RCT-1 is a learning device which will allow you to control other brands of accessories with the McIntosh Hand Held Remote Controller.

The C39 and MX130 Control Centers also provide traditional "McIntosh Quality" reproduction of two channel stereo program sources such as the compact disc.

Refer to the section on the CR10 REMOTE CONTROL SYSTEM for information on how to add additional areas of remote control capability to the Home Theater System.

MC7106, SIX CHANNEL POWER AMPLIFIER

The MC7106 is an ideal companion to a C39/MX130 to make a neat and efficient McIntosh Home Theater System. Each channel of an MC7106 will deliver 160 watts of power into the 4 ohm loads of McIntosh HT Series Home Theater Loudspeakers. This a total of 960 watts of undistorted McIntosh power in the listening-viewing area.

A C39/MX130 can be connected to the MC7106 with a single 25 conductor subminiature "D", computer type cable. This cable carries all of the audio channels and AC power control from the Control Center to the MC7106.

HT SERIES HOME THEATER LOUDSPEAKERS

The HT Series loudspeakers are designed to reproduce both movie soundtracks and stereo program sources with traditional "McIntosh Quality."

HT-1 (Left Front, Center and Right Front)

The HT-1 is a 2-way system using two 8 inch McIntosh LD/HP woofers and three aluminum dome tweeters. The tweeters are mounted in a column, on a panel which can be rotated. The tweeter column must be positioned with the tweeters in a vertical array for the correct control of vertical high frequency dispersion. The rotating tweeter panel allows the proper tweeter column configuration for either vertical or horizontal HT-1 mounting positions. Use the vertical position for the left and right front locations to use less floor space. Use the horizontal position for the center location for minimum obstruction of the viewing screen.

HT-2 SUBWOOFER

The HT-2 uses two, 12 inch, McIntosh LD/HP woofers, downward firing in a vented enclosure. It is designed to reproduce bass frequencies of 80Hz and lower, as defined by the electronic crossover in the C39/MX130 subwoofer channel. The HT-2 will reproduce bass frequencies present in today's action movies with dramatic impact.

HT-3F (In wall flush mount), HT-3W (On wall surface mount)

The HT-3F/W is designed for Left and Right Surround signals which must be diffuse, non directional and reflect off the room surfaces. For the proper ambience effect, the listeners should not be aware of the location of the surround signal sources. The HT-3F/W uses a dipole antiphase design with a pair of 2-way systems using a 5 inch woofer and 1 inch dome tweeter. One of the two way systems radiates toward the front, and the other toward the rear. The speakers are to be positioned on the left and right walls, with the listeners in the "Null" area of the speaker radiating pattern.

McINTOSH HOME THEATER SYSTEM WITH DOLBY PRO LOGIC™ PROCESSING

**MX118 A/V TUNER CONTROL CENTER
MC7108, 8 CHANNEL, 5 WAY, POWER AMPLIFIER
WS210, LS310, LS330 and HT-4 LOUDSPEAKERS**

MX118 A/V TUNER CONTROL CENTER (Home Theater and Stereo)

The MX118 is remote controlled and includes all the features and circuits necessary for a "McIntosh Quality" Home Theater System on a more modest scale. Dolby Surround, Pro Logic™ processing circuits and a McIntosh full featured AM/FM Tuner are built-in. The MX118 features the popular 5-3/8 inch high front panel format.

Dolby, Pro Logic and the Double D symbol are registered trademarks of Dolby Laboratories Licensing Corporation.

MC7108, 8 CHANNEL, 5-WAY POWER AMPLIFIER

Each of the eight MC7108 channels can deliver 40 watts of power into 4 ohm speaker loads. Each of the four pairs of channels can be connected in bridged configuration to deliver 100 watts into 4 ohm speaker loads.

The MC7108 can be operated in five different modes.

- (1) 8 - 40 watt channels. **(4 Area CR10 Remote Control System)**
- (2) 6 - 40 watt channels and 1 - 100 watt channel, (Bridged pair).
- (3) 4 - 40 watt channels and 2 - 100 watt channels, (2-Bridged Pairs).
- (4) 2 - 40 watt channels and 3 - 100 watt channels, (3- bridged pairs), **(Home Theater Application)**
- (5) 4 - 100 watt channels.

(Use MC7108 Operating Mode "4" for your Home Theater System).

3 - 100 watt , bridged pair, channels for Left, Center and Right Front loudspeakers.

2 - 40 watt channels for Left and Right Surround loudspeakers.

LOUDSPEAKERS

The following loudspeaker models have low magnetic radiation to allow their use near a TV.

LS310 - 2 Way System: 1 - 8 inch LD/HP woofer, 1 - 1 inch Dome Tweeter.

LS330 - 2 Way System: 2 - 8 inch LD/HP woofers, 1 - 1 inch Dome Tweeter.

HT-4 - 2 Way, Low Profile Center channel, system: 2 - 6-1/2 inch woofers, 3 - 1 inch dome tweeters in a vertical array.

(The HT-4 is designed with the same sonic balance as the other HT Series loudspeakers, and can be used for Center channel reproduction in the McIntosh Home THX® Theater System.)

WS210 - 2 Way, In Wall System: 1 - 6-1/2 inch LD/HP woofer, 1 - 1 inch dome tweeter.

HOME THEATER LOUDSPEAKER APPLICATION

LS310 or LS330 loudspeakers for Left Front and Right Front.

HT-4 loudspeaker for Center Front. (The LS310 may also be used as a Center loudspeaker.)

WS210 loudspeakers for Left and Right Surround.

(If LS310 loudspeakers are used for the front positions, the optional HT-2 Subwoofer is a desirable addition.)

CR10 REMOTE CONTROL SYSTEM

The McIntosh CR10 Remote Control system has been designed as a control center for a full featured audio and video entertainment system. It can be used alone, or combined with a McIntosh Home Theater System. Refer to the section in this document titled HOW TO COMBINE A CR10 WITH A McINTOSH HOME THEATER SYSTEM for details.

The CR10 together with a selection of optional accessories will allow you to create a remote control system with a wide variety of performance possibilities. McIntosh dealers' experience with custom audio/video systems has shown that each installation usually will be different, since it is designed to satisfy each client's particular personal needs.

CR10 OPERATING FEATURES

FOUR SEPARATE AREAS CAN BE CONTROLLED

A CR10 is shipped with two area control modules installed, making it ready, out of the carton, to control two separate areas. Usually Area One will be referred to as the Main Area, and Areas Two, Three and Four as Remote. If a CR10 is used in conjunction with a Home Theater System, all four areas will be remote. One HR10 hand held remote controller is included with each CR10.

To bring the area control to a total of four, two additional ACM-1 Modules must be added. The Module built-in for Area One, has the addition of a pair of fixed level outputs on the rear panel which are labeled TAPE OUT.

Each area controlled by a CR10 requires a dedicated stereo power amplifier or pair of channels of a multi-channel amplifier, a dedicated pair of loudspeakers and a remote area IR wall sensor or keypad. The only wiring needed from a CR10 to each remote area is pair of loudspeaker cables and a single coaxial lead to the wall sensor or keypad.

A McIntosh MC7108, 8 channel power amplifier, makes an excellent companion to a CR10 to power the four areas. Connect a cable from the Power Control DIN connector on the MC7108 to the POWER CONTROL DIN connector on the CR10 to turn on the MC7108 whenever a CR10 area is turned on. This connection also unmutes the MC7108 audio inputs for each area turned on.

A separate MC7100 stereo power amplifier can also be used for each area instead of the MC7108. This is especially convenient if less than four areas are to be controlled.

The In-Wall WS210 or WS220 loudspeakers provide traditional McIntosh loudspeaker performance in a space saving flush wall mount configuration for use in each remote area.

SIX SEPARATE AUDIO PROGRAM INPUT SIGNALS CAN BE ACCOMMODATED

The CR10 can accept the following program signal sources to be programmed for any of the four areas.

- 1: CD PLAYER (CD2 is transferred to the CR10 from a C39, Mx130 or MX118)
- 2: TUNER
- 3: VIDEO (Audio signals from a video accessory)
- 4: TAPE 1
- 5: TAPE 2
- 6: AUXiliary

CR10 UNITS CAN BE CASCADED FOR ADDITIONAL AREA CONTROL

A 25 pin connector labeled TO NEXT CONTROLLER on the back panel of the CR10 is provided for installing a cable to a similar connector labeled CONTROLLER INPUT on an additional slave CR10. This allows you to control an additional four areas. Use a shielded 25 conductor subminiature "D" male-to-male computer type cable. As many as 10 CR10 units can be cascaded in this manner for a total control capability of 40 areas.

CR10 FRONT PANEL DISPLAYS

1. The program signal selected for each of the four areas..
2. The areas that are active and in use.
3. The volume level selected for each area.
4. When the HC-1 is being programmed, the HOME LED will light.
5. If Area One is Muted, the MUTE LED will light.

CR10 FUNCTION MODIFICATIONS

A McIntosh dealer can make any of the following modifications to change the CR10 operating functions.

1. A Slave CR10 connected to the Main CR10 can be modified to accept signals from a dedicated CD Player or dedicated Tuner instead of a CD player or Tuner connected to the Main CR10. Program signals from these dedicated units will only be available in the four areas covered by the Slave CR10.

2. The standard default turn on functions can be changed. Normally a CR10 will turn on with TUNER selected, at a volume level 50dB below maximum. The default turn on volume can be changed to come on at the last used volume setting. The default turn on program source can be changed from TUNER, to the program source last used.

3. When a CR10 is installed in the main equipment area next to a Control Center, the CR10 front panel IR sensor must be disabled to avoid interference from IR signals sent to the Control Center. Since additional slave CR10 units will also be in the main equipment area, their front panel sensors also must be disabled to avoid interference.

A TYPICAL CR10, 4 AREA REMOTE CONTROL SYSTEM

(McIntosh Products)

- 1 - CR10
- 2 - ACM-1 Area Control Modules. (Increases the CR10 control capability to 4 areas.
- 4 - WK-2 Keypads.
- 1 - MC7108, 8 channel Power Amplifier.
- 8 - WS210 Loudspeakers
- 1 - MR7083 AM/FM Tuner.
- 1 - MCD7008 CD Changer.

HOW TO COMBINE A CR10 WITH A McINTOSH HOME THEATER SYSTEM

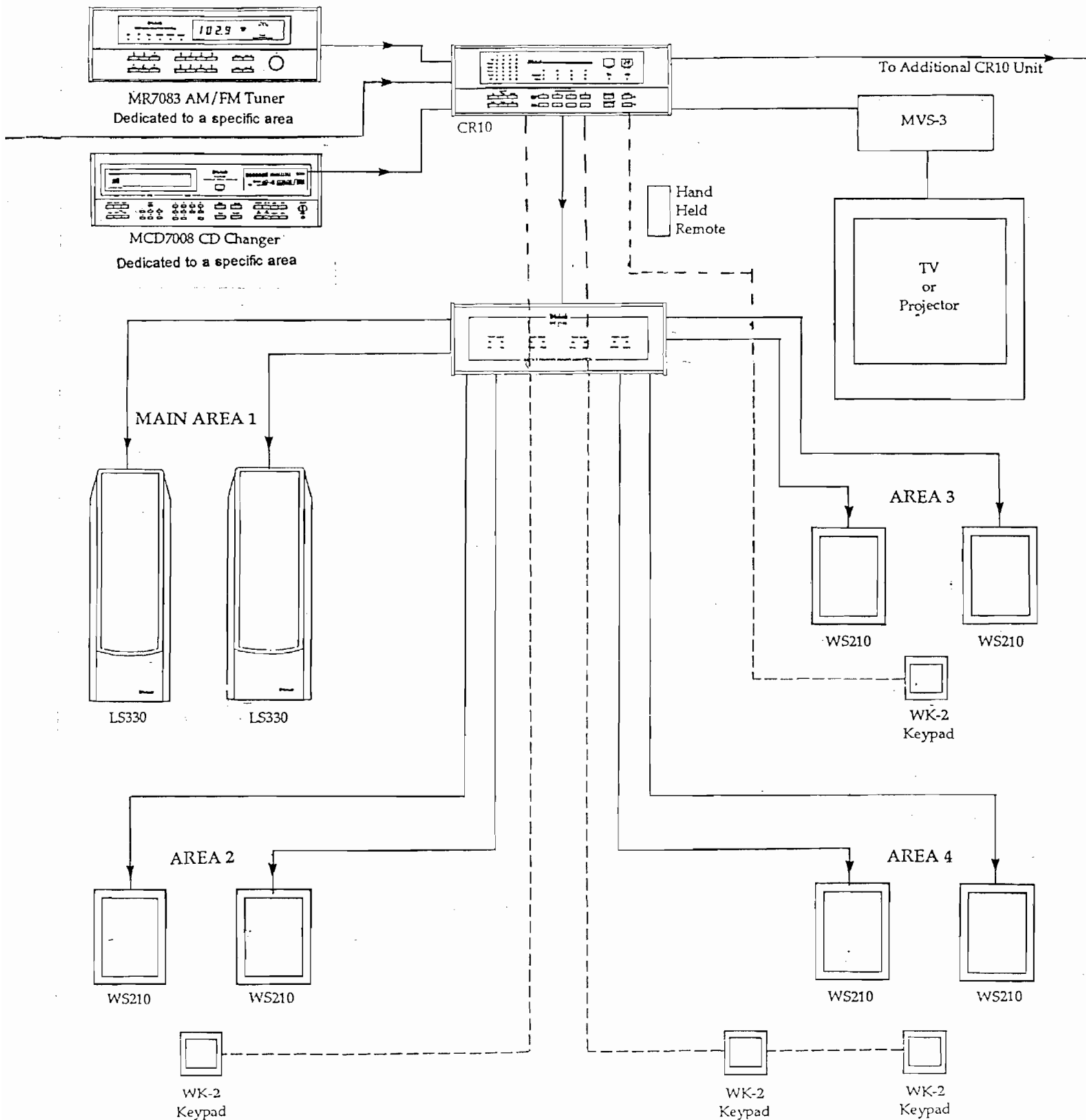
It is easy to connect a McIntosh CR10 Remote Control System to a McIntosh Home Theater System to add four areas of remote audio control. The C38, C39 and MX130 and MX118 are provided with a rear panel connector labeled TO MULTI-ROOM CONTROLLER. Use a shielded 25 conductor subminiature "D" male-to-male computer type cable from this connector to the CR10 CONTROLLER INPUT connector.

All the signal program sources are to be connected to the Control Center Inputs instead of the CR10. The six input signals that can be accommodated by the CR10 will travel down the 25 conductor cable from the Control Center to the CR10. These signals are CD2, TUNER, VIDEO, TAPE 1, TAPE 2 and AUXiliary. (A CD player connected to the Control Center CD1 input is usually used in the main Control Center area, while the CD player connected to CD2 is for the remote areas). You will be able to program the CR10 just as you would if it were in a stand alone system. Program sources and volume levels can be selected in each of the CR10 remote areas independently from any program that has been selected by the Control Center. If a CR10 is used with the MX118 or MX130 AV Tuner Control Center, the MR7083 is not required.

When a CR10 is used in combination with a Control Center, all the CR10 areas controlled will be remote from the main home equipment area. The CR10 also will be located in the home area, next to or near to the Control Center. The CR10 front panel IR sensor must be disabled to avoid interference from the Control Center Hand Held Remote transmitting to the Control Center sensor. Then the CR10 will respond only to programs sent from the remote areas to the remote sensor or keypad. CR10 programming can still be done at the front panel of the unit using the appropriate pushbuttons.

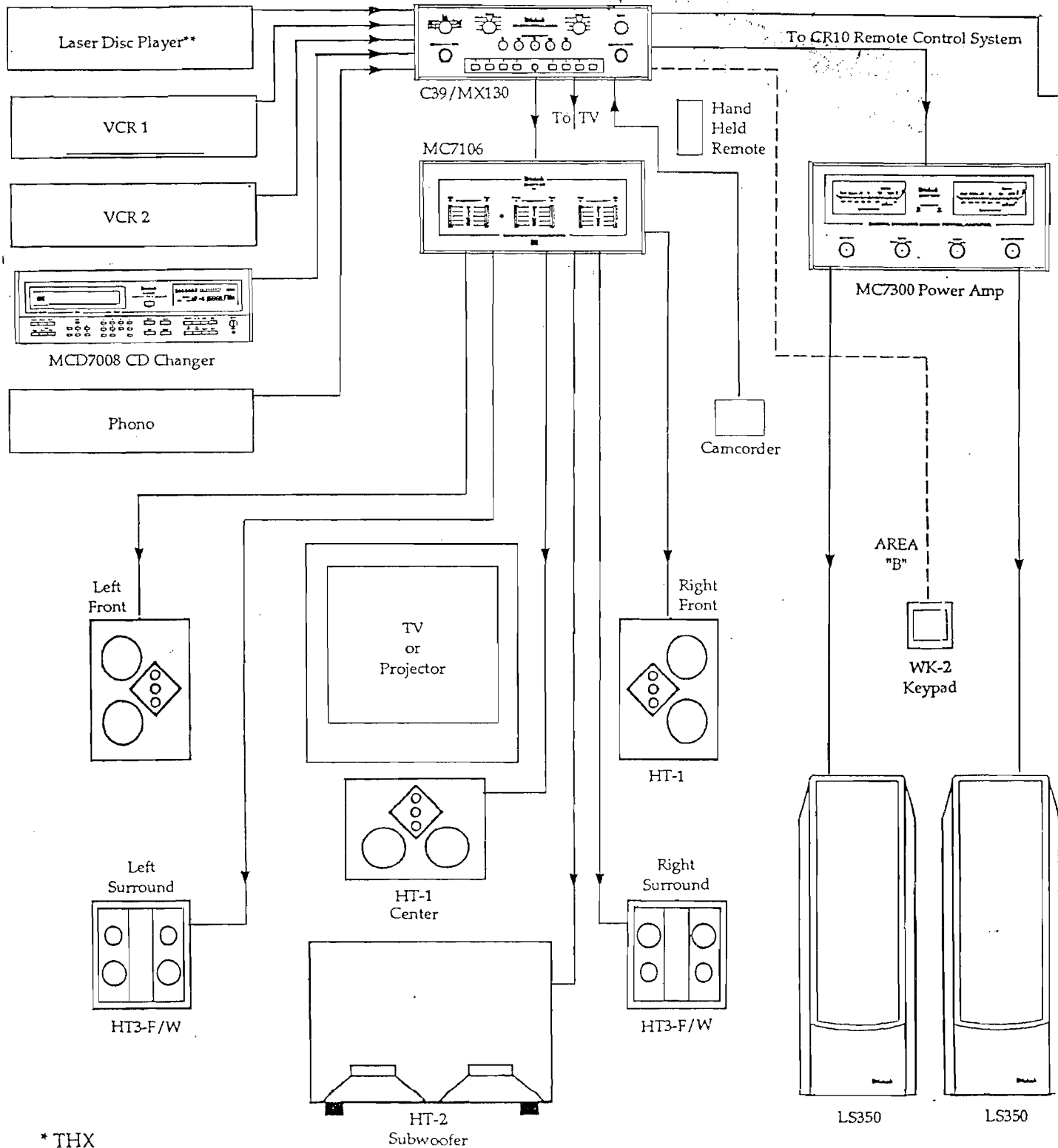
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HOME THEATER II* PLUS AUDIO SYSTEM



* THX

** Potential 1995 McIntosh Product