



INSTRUCTION MANUAL

MODEL CD-1 COMPACT DISC CONTROL

VERSION 3.00
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INTRODUCTION

The Museum Technology Source, Inc. CD-1 Compact Disc Controller adapts a compact disc player to provide high-quality, reliable stereo sound continuously or on demand. Unless otherwise specified at time of order, the CD-1 is shipped set to work with the TASCAM CD-301. Please see page 9 for instructions on setting the CD-1 to work with other players.

For visitor-activated sound, an external pushbutton may be attached to activate the CD-1. When a visitor presses the pushbutton, the CD-1 commands the compact disc player to play a certain segment of the disc. The desired track number, along with the playing time, is set via front panel thumbwheel switches. During playback, additional button presses will have no effect on the player. When the selection ends, the CD-1 stops the player automatically and waits for the next button press. For continuous sound, the supplied Continuous Play Adaptor is simply plugged into the rear panel Button jack. This is useful for ambient or environmental sound effects.

Programming the CD-1 requires no tools or special training. Six thumbwheel switches on the front of the controller, which are set manually, input the desired track number and playing time. These can be reprogrammed in seconds, at any time, and as often as required.

In addition, the Special Application Output (SAO) feature may be used to trigger an external event, such as illuminating a lamp or energizing a relay. The SAO may be programmed to send the desired signal at any time during or after the disc selection. The SAO is not necessary to the operation of the CD-1; it merely increases the system's range of applications.

Front Panel Controls

Program Selector

The six thumbwheel switches on the front panel of the CD-1 make up the program selector. This is used to determine which track the CD-1

plays and for how long. The first two switches, marked TRACK, tell the CD-1 where to start playing the disc. The next four, marked PLAYING TIME, program the length of the selected track.

Since the CD-1 receives no feedback from the compact disc player, it has no way of determining when a particular track on the disc has finished playing. Therefore, instead of just setting the desired track number, the playing time must also be programmed. This allows playing to end at any point, rather than limiting use to the track lengths as they are stored on the disc.

For example, to program the CD-1 to start at the beginning of track 3 and play for 1 minute and 27 seconds, set the TRACK switches to 03, the MINUTES switches to 01 and the SECONDS switches to 27.

The CD-1 flashes the PLAY light while the switches are being changed. When the switches remain unchanged for three seconds the CD-1 reads the programmed selection, initializes the compact disc player, and waits for the PLAY button to activate the system.

The program selector also controls the Special Application Output and the troubleshooting aids. Please refer to page 9 in this manual for more information about these options.

PLAY Button

The PLAY button on the front panel tells the CD-1 to start playing the programmed selection. It operates the same way as a remote pushbutton connected to the "PLAY BUTTON" jack on the rear panel. Pressing the PLAY button sends the same signal to the CD-1 as the pushbutton, making it useful for testing the controller. When the PLAY button is pressed, the CD-1 lights the PLAY light, plays the selection, stops the player and then turns off the light.

PLAY Light

The PLAY light will be lit whenever the remote pushbutton is activated. It remains lit while the compact disc player plays the selection. When the selection finishes, the PLAY light turns off automatically.

The PLAY light also indicates that the CD-1 is initializing the player. When power is first turned on, and whenever the switches are changed, the PLAY light begins flashing to indicate that the CD-1 is starting up. The light flashes until the switches remain unchanged for three seconds; it next lights up when the button is pressed and the disc selection plays.

POWER Light

The POWER light goes on whenever the CD-1 has power. If the POWER light isn't lit, either the CD-1 hasn't been plugged in or the outlet isn't receiving power.

Rear Panel Connectors

PLAY BUTTON Jack

The PLAY BUTTON jack connects an external, illuminated pushbutton to the CD-1. The four pins provide a lamp output, power for the lamp, a pushbutton input, and a return ground for the pushbutton.

If the Continuous Play Adaptor is placed in the PLAY BUTTON jack, the CD-1 will play the programmed selection continuously.

SPECIAL APPLICATION Jack

The SPECIAL APPLICATION jack may connect to an additional light, relay system, or any other additional elements connected with the disc playback. The Special Application Output (SAO) is an extra output, programmable to turn on for one second at any time during the selection. For programming instructions, please refer to the "Special Application Output" section of the manual. The factory default setting is for the SAO to turn on for one second, one minute from the end of the selection.

IR OUT Jack

The infrared (IR) bracket mounts over the compact disc player's Remote Sensor and plugs into the IR OUT jack. The CD-1 uses the IR

bracket to send commands to the compact disc player. For those CD players using a wired remote, a cable is supplied in lieu of the Infrared bracket

Power Supply

The CD-1 receives its power from an external plug-in power supply. Connect the wire from the power supply to the POWER jack on the rear panel of the CD-1.

. For proper operation, the CD-1 controller, compact disc player and amplifier must be connected to the same power source. To ensure correct use, plug all the system equipment (the CD-1, the compact disc player and the amplifier) into a single outlet strip.

INSTALLATION

Installing the CD-1 system is quick and easy. The compact disc player connects to both an amplifier and the CD-1 controller. Once the track number and playing time for the compact disc have been selected, programming the CD-1 takes only a few minutes.

Please note that for proper operation, the compact disc player and the CD-1 controller must be connected to the same power source. Plug them both into a single outlet strip.

Setting Up the Player, Amplifier and Speakers

Before installing the CD-1, set up the compact disc player according to the manufacturer's instructions. Connect an amplifier to the player and plug the amplifier into the same AC outlet as the player. Attach suitable speakers to the amplifier. Turn the player on, put in a compact disc, and test the player to make sure it plays properly. Press the STOP button on the player.

Setting Up the CD-1 Controller

Place the IR bracket assembly on top of the compact disc player. The bracket is shaped like a large L. The longer leg of the L has a magnetic strip attached to it; this adheres to the top of the player. The shorter leg of the L has a black box (the infrared transmitter) mounted on the outside. This box hangs over the player. Adjust the

bracket so that the inside surface of the box is centered directly over the compact disc player's remote sensor, at least 1" from the player.

Plug the IR bracket assembly into the IR OUT jack located on the back of the CD-1. Plug the CD-1 into the same power source as the compact disc player and amplifier. If using the Special Application Output, program the desired trigger time before programming the selection's track number and playing time. Please see the "Special Application Output" section of the manual for SAO programming instructions.

Some compact disc players have a wired remote control (Tascam CD-301, for example) instead of an infrared (IR) remote control. These models have a connector on them for connection to a remote control. To set up the CD-1 system using this type of compact disc player, a cable links the player with the CD-1 in place of the magnetized IR bracket. Museum Technology Source provides the appropriate cables for this arrangement.

Programming the CD-1 Controller

1. Choose the track number and playing time for the disc selection. The PLAY light will flash while the switches are being adjusted. Set the TRACK switches on the front panel to the track number where the compact disc should start playing. If the track number is less than ten, set the first digit to zero; for example, to play the fifth track, set the switches to 05.
2. Set the PLAYING TIME switches for the length of time the disc should play, in minutes and seconds. Again, if a number is less than ten the first digit should be set to zero; a playing time of 8 minutes and 3 seconds would be programmed by setting the MINUTES switches to 08 and the SECONDS switches to 03.
3. The PLAY light continues to flash for three seconds after the switches have been set, then lights continuously for about five seconds while the CD-1 initializes the compact disc player. The light turns off when the player is initialized.

Attaching a Remote Pushbutton to the CD-1

The CD-1 controller may be operated by pressing a pushbutton mounted on a public display surface. The pushbutton lights while the disc selection plays. Once the button has been pressed, additional presses will not interrupt the playback until the selection is finished.

The PLAY BUTTON jack on the back panel of the CD-1 is a modular telephone jack, which accommodates a remote illuminated pushbutton. Museum Technology Source, Inc., offers durable pushbuttons in a variety of colors, which come pre-wired for this jack. Please contact the company for more detailed descriptions and ordering information.

The PLAY BUTTON jack provides an input line and a ground return line. Whenever these lines are connected together the CD-1 begins playing the programmed selection, just as if the PLAY button on the front panel had been pressed. For the continuous play of a selection, simply connect pin 2 to pin 3; this simulates a button that is held down permanently. Using a standard telephone modular cord, the RED and GREEN wires should be connected together.

The jack also provides lamp output and power lines. A 12-volt lamp connected between these lines lights whenever the PLAY light on the front panel lights. This allows the remote button to remain illuminated during the selection.

The modular phone connector (RJ-11) is a 6 position, 4-pin connector. Pin 1 is the output driver for the light; it is an open-collector output, floating when off and sinking current to ground when on. Pin 2 is the input line for the pushbutton; grounding it is equivalent to pushing the PLAY button on the front panel. Pin 3 is ground for the pushbutton. Pin 4 supplies +12 volt regulated power for the light.

The button input will be driven by anything that can sink 20 mA of current when closed and block 12 volts when open. The lamp output can sink 250 mA of current when on and can block 12 volts maximum when off.

Special Application Output

The CD-1 provides a Special Application Output, or SAO, in addition to the illuminated pushbutton output. The SAO may be programmed to

turn on, or send an electronic signal, for one second at any time during the selection. This signal can be used to turn on a light, energize a relay, or trigger any other external action required. The SAO may be programmed to start at any time either after the beginning or before the end of the selection. It may also be disabled. The compact disc's sound is not affected by the SAO.

The SAO is a modular telephone connector (RJ-11). Pin 1 is the output driver for the light. It is an open-collector output, floating and blocking 12 volts max when off and sinking current to ground, up to 250 mA, when on. Pins 2 and 3 are tied to the same pins on the PLAY BUTTON jack. Pin 4 supplies +12 volt regulated power for the light.

The CD-1's front panel selector switches are used to program the SAO. Since the switches also set the track number and playing time of the selection, the SAO must be programmed before the disc selection.

Programming the SAO: This is done via the front panel selector switches. Three code settings are used to program the SAO: 91, 92, and 93. Code 91 triggers the signal a desired time from the beginning of a selection, code 92 triggers the signal a desired time from the end of the selection, and code 93 disables the SAO. The default setting is for the SAO to go on one minute before the end of the program.

To begin programming, set the TRACK switches to the appropriate code, 91, 92, or 93. Set the PLAYING TIME switches to the desired minutes and seconds the SAO should turn on from the end of the selection (or the beginning). The PLAY light will flash for three seconds, and then stop. Press the PLAY button; it will flash rapidly, and the new SAO program will be set.

For example, to set the SAO for 2 minutes and 30 seconds after the selection begins, set the TRACK switches to 91, the MINUTES switches to 02, and the SECONDS switches to 30. When the PLAY light stops flashing, press the PLAY button. The SAO will now send a signal of one second duration at 2 minutes and 30 seconds into the selection; if the selection lasts less than that time, the SAO will never turn on.

To set the SAO for ten seconds before the selection ends, set the TRACK switches to 92, set the MINUTES switches to 00 and the

SECONDS switches to 10, wait for the PLAY light to stop flashing, then press the PLAY button.

To turn off the SAO, set the TRACK switches to 93, wait for the PLAY light to stop flashing, then press the PLAY button.

Once the SAO has been set, the switches are ready to program the selection track number and playing time.

TRACK COMMAND LIST

The TRACK switches on the front panel selector are used to select the track played by the CD-1, to direct the SAO, and for other special functions. While the switches are being changed, the CD-1 suspends whatever it was doing and flashes the PLAY light. After the switches have remained unchanged for three seconds, the CD-1 performs the specified function.

Here is a complete list of the TRACK settings and their functions. Here are the various track commands (XX:XX represents the time thumbwheel settings). The CD-1 will wait until 3 seconds have passed after any of the thumbwheels have changed, and then will either wait until a button is pressed or begin the function immediately, depending on the command.

Track 00: Do nothing

Track 01 through track 90: Play given track for given time

Track 91: Set the SAO to start XX:XX from the beginning (press PLAY button)

Track 92: Set the SAO to start XX:XX from the end (press PLAY button)

Track 93: Disable the SAO (press PLAY button)

Track 94: Button/lamp/SAO test (pressing PLAY button lights and turns on SAO: releasing lamp turns lamp and SAO off)

Track 95: InfraRed Output Test. Sends a series of STOP commands. Primarily for factory test purposes.

Track 96: Player Type Select. Set time switches for desired player and press PLAY Button:

00:01 - TASCAM CD-201 or CD-301

00:02 - Pioneer single disc players e.g. PD-5700, PD-201, PD-202, PD-203

00:03 - Technics, including SL-PD887 family of CD changers

00:04 - JVC XL--V282

00:05 - Optimus/Radio Shack CD-8150

Track 97: Set Lamp Invert Set time to 00:00 to leave button inversion off (lamp is off when idle, lit when playing.) Set time to any other value to turn button inversion on (lamp is ON when idle, OFF when playing.) Press the PLAY to store the command after setting thumbwheel switches.

Track 98: Factory test (EEPROM Clear)

Track 99: Factory test.

TROUBLESHOOTING

Testing the external pushbutton

If you suspect that the external pushbutton or lamp do not function properly, test them using the TRACK switches on the front panel:

Set the TRACK switches to 94. The PLAY light and external pushbutton light flash for three seconds, then turn off. Press and release first the front panel PLAY button and then the external pushbutton. At each press, the front panel and external lights should turn on and off.

If pressing the external pushbutton doesn't light the front panel PLAY light, and if the external light never goes on, check the pushbutton cable connection to the CD-1. If pressing the external pushbutton lights the PLAY light but not the external pushbutton, check to make sure the pushbutton is connected to the PLAY BUTTON jack and not the SAO jack. Check the external light itself. If the pushbutton does nothing at all, check the pushbutton and cable.

Other Problems

Problem: The CD-1 won't do anything; the red POWER light on the front panel isn't on.

Solution: The CD-1 isn't getting power. Make sure the power supply is plugged into a working AC outlet.

Problem: When the front panel PLAY button is pressed, the PLAY light turns on but the compact disc player doesn't do anything.

Solution: The IR bracket isn't connected properly. Make sure the bracket is correctly centered over the CD player's IR receiver. Note: the IR transmitter has sufficient power to operate the player from over a foot away. Hold the bracket, aimed at the player about a foot from the front of the player, and press the play button. To speed things up, set the selector switches for Track 1, with a play time of 2 seconds. Press the Play button, and the CD player should respond to commands. This technique is useful for locating the CD player's IR receiver.

Problem: When the PLAY button is pressed, the compact disc player indicates it is playing but no sound comes out of the speakers.

Solution: The compact disc player isn't properly connected to the amplifier and speakers. Consult the player's manual.

Problem: The compact disc player plays at the wrong time.

Solution: The compact disc player and the CD-1 controller weren't plugged in at the same time. Plug them both into the same switched outlet strip, with the amplifier, and then turn on the strip.

Problem: Pressing the external pushbutton starts the CD-1, but the external light turns on for only one second during the selection instead of remaining lit until it finishes.

Solution: The external pushbutton is connected to the SAO jack. It should be connected to the PLAY BUTTON jack.

ADDENDUM

These are the players supported in the final version of the CD-1

CD-1 version 3.23 1/5/05

Supported CD Player types (and TW track 96 codes)

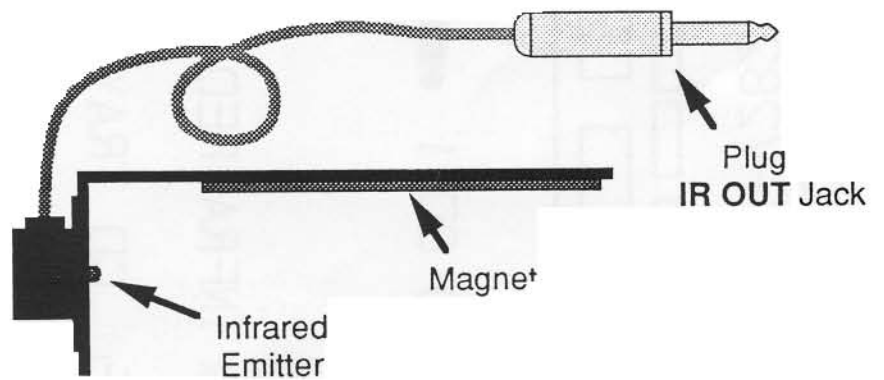
1. Tascam CD-301
2. Pioneer single disc players
3. Technics Changer SL-PD887
4. JVC XL-V282BK
5. Sony CDP-CE375 changer
6. Tascam CD-450



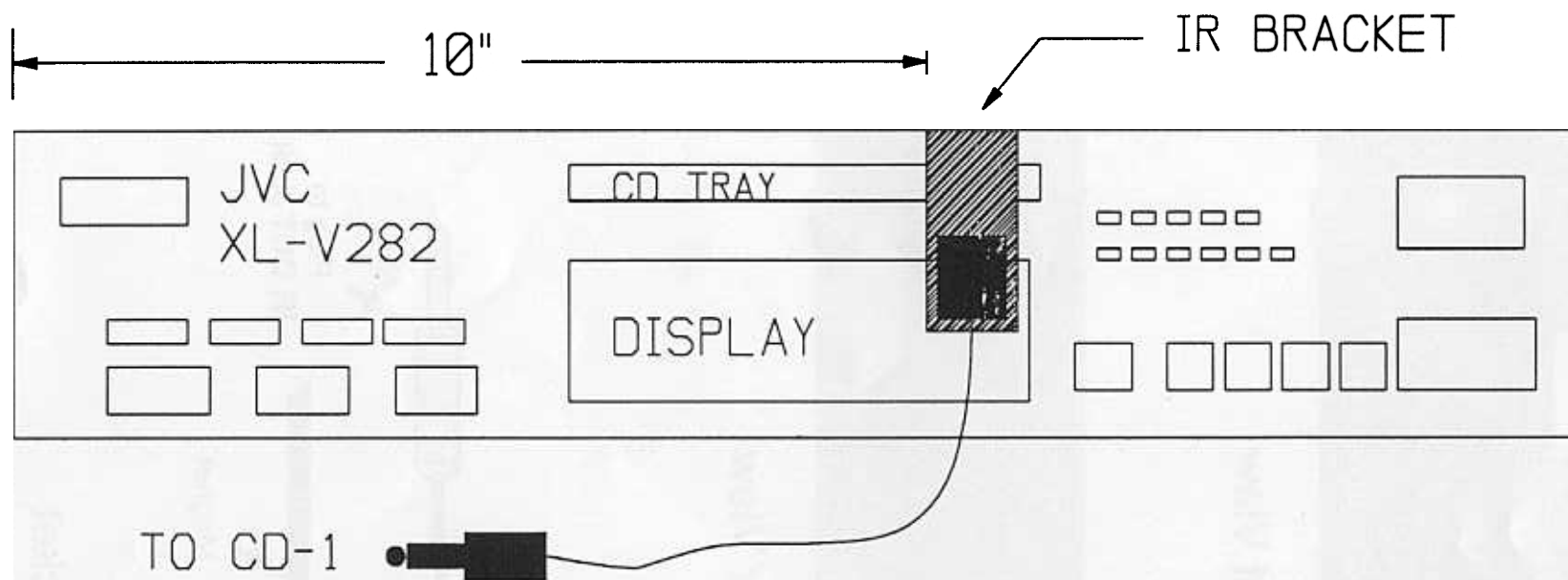
CD Front View



CD Rear View



IR Bracket



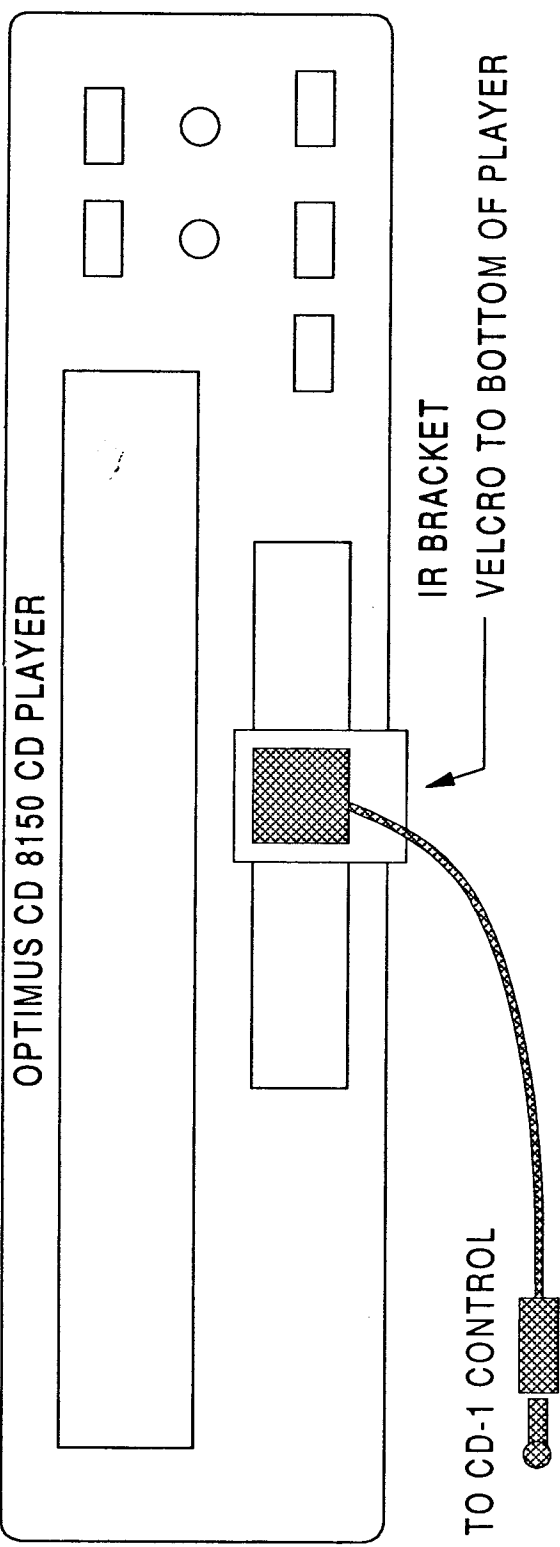
USING INFRA RED BRACKET WITH JVC PLAYER

NOTE: CD TRAY OPENING IS BLOCKED BY IR BRACKET.
 INSERT CD, THEN MOUNT BRACKET

JVC IR BRACKET

MUSEUM TECHNOLOGY SOURCE INC.
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 781-729-5895 800-729-6873 FAX 781-729-8839

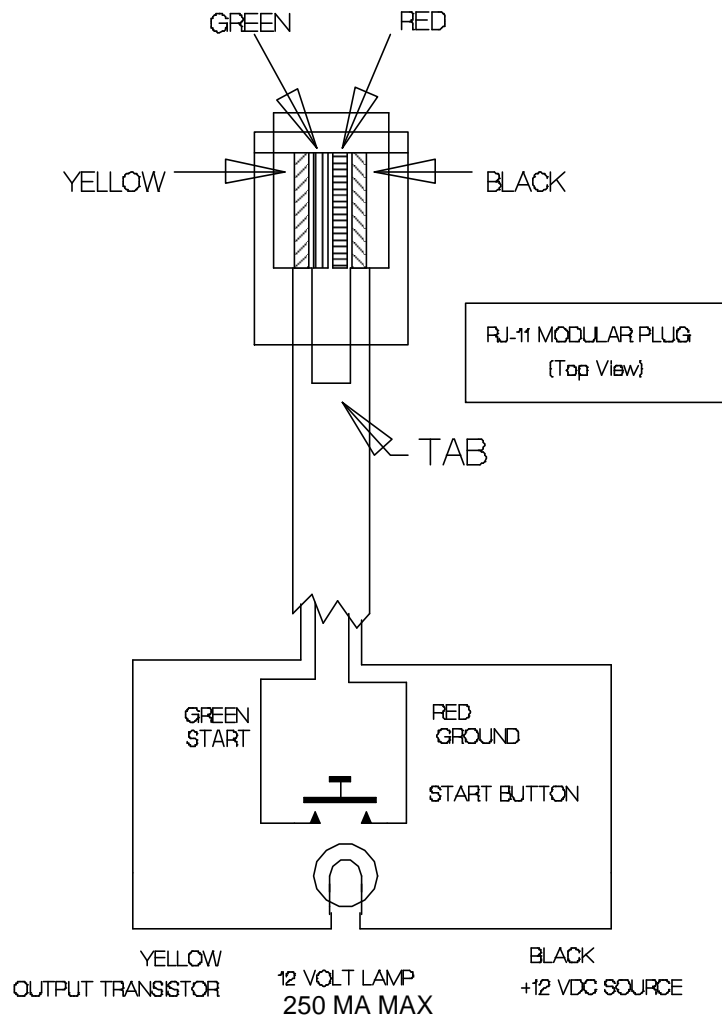
DATE 6-29-98 BY MC DWG NO JVC_CD1



USING IR BRACKET WITH OPTIMUS CD PLAYER

MUSEUM TECHNOLOGY SOURCE INC.
WINCHESTER MASS 01890

MAR 29 1999 MC



YELLOW: Collector of NPN transistor conducts to ground to turn on lamp

GREEN: Connect to ground to start. Source is 12 VDC at 10 mA

RED: Common ground

BLACK: Source of 12 VDC to power lamp. Maximum load 250 mA

START PUSHBUTTON WIRING STANDARD

Museum Technology Source Inc.

Rev B 10-11

p 800-729-6873 p 978-657-3898 f 978-657-7132

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