Outlaw Model 1050 Receiver
Owner's Manual

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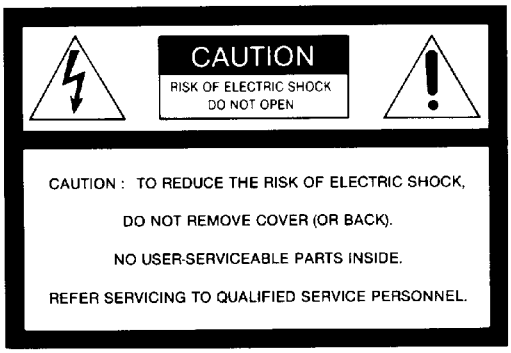
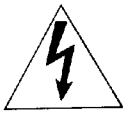
Version 1.0

Important Safety Information

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.





This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

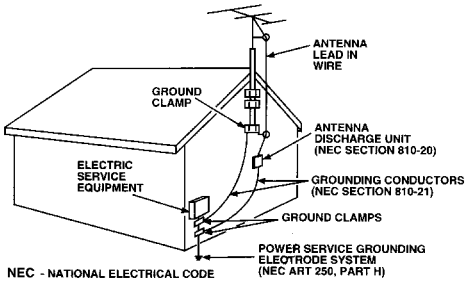
This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

OUTDOOR ANTENNA INSTALLATION

1 SAFE ANTENNA AND CABLE CONNECTION

If an outside antenna or cable system is connected to the equipment, be sure the antenna or cable system is grounded so as to provide some protection against built up static charges and voltage surges. Section 810 of the National Electrical Code, ANSI/NFPA 70 (in Canada, part 1 of the Canadian Electrical Code) provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements for the grounding electrode.



2 KEEP ANTENNA CLEAR OF HIGH VOLTAGE POWER LINES OR CIRCUITS

An outside antenna system should be located well away from power lines, electric light or power circuits and where it will never come into contact with these power sources if it should happen to fall. When installing an outside antenna, extreme care should be taken to avoid touching power lines, circuits or other power sources as this could be fatal. Because of the hazards involved, antenna installation should be left to a professional.

As the owner of an Outlaw Audio Model 1050 Receiver, you are in possession of a unique product. We hope that your new Outlaw 1050 will bring many years of enjoyable listening to your music or home theater system.

In order to receive the maximum enjoyment from your new receiver, please take a few minutes to read this manual. This important information will help you to make certain that the receiver is properly configured for operation with the rest of the equipment in your system. This brief investment of time will provide major dividends by making certain that your receiver is properly installed and optimized for the specifics of your installation.

If you have any questions about this product, its installation or operation, please contact us via e-mail at customerservice@outlawaudio.com or via telephone at 800-392-1393.

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Before You Install Your 1050

Contents Of The Outlaw 1050 Receiver Shipping Container

Verify Line Voltage Before Use
Your 1050 Receiver has been designed for use with 120-volt AC current. Connection to a line voltage other than that for which it is intended can create a safety and fire hazard and may damage the unit. If you have any questions about the voltage requirements for your specific model, or about the line voltage in your area, contact your selling dealer before plugging the unit into a wall outlet.

Do Not Use Extension Cords
To avoid safety hazards, use only the power cord attached to your unit. We do not recommend that extension cords be used with this product. As with all electrical devices, do not run power cords under rugs or carpets or place heavy objects on them. Damaged power cords should be replaced immediately with cords meeting factory specifications.

Handle the AC Power Cord Gently
When disconnecting the power cord from an AC outlet, always pull the plug, never pull the cord. If you do not intend to use the unit for any considerable length of time, disconnect the plug from the AC outlet.

Do Not Open the Cabinet
There are no user-serviceable components inside this product. Opening the cabinet may present a shock hazard, and any modification to the product will void your guarantee. If water or any metal object such as a paper clip, wire or a staple accidentally falls inside the unit, disconnect it from the AC power source immediately, and consult an authorized service station.

CATV or Antenna Grounding. If an outside antenna or cable system is connected to this product, be certain that it is grounded so as to provide some protection against voltage surges and static charges.

Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements of the grounding electrode.

NOTE TO CATV SYSTEM INSTALLER: This reminder is provided to call the CATV (Cable TV) system installer's attention to article 820- 40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as possible

Installation Location
To assure proper operation and to avoid the potential for safety hazards, place the unit on a firm and level surface. When placing the unit on a shelf, be certain that the shelf and any mounting hardware can support the weight of the product. Make certain that proper space is provided both above and below the unit for ventilation. If this product will be installed in a cabinet or other enclosed area, make certain that there is sufficient air movement within the cabinet. Under some circumstances a fan may be required.

• Do not place the unit directly on a carpeted surface.

• Avoid installation in extremely hot or cold locations, or an area that is exposed to direct sunlight or heating equipment.

• Avoid moist or humid locations.

• Do not obstruct the ventilation slots on the top of the unit, or place objects directly over them.

Cleaning
When the unit gets dirty, wipe it with a clean, soft, dry cloth. If necessary, wipe it with a soft cloth dampened with mild soapy water, then a fresh cloth with clean water. Wipe dry immediately with a dry cloth. NEVER use benzene, aerosol cleaners, thinner, alcohol or any other volatile cleaning agent. Do not use abrasive cleaners, as they may damage the finish of metal parts. Avoid spraying insecticide near the unit.

Moving the Unit
Before moving the unit, be certain to disconnect any interconnection cords with other components, and make certain that you disconnect the unit from the AC outlet.

Important Information for the User
This equipment has been tested and found to comply with the limits for a Class-B digital device, pursuant to Part 15 of the FCC Rules. The limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio-frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that harmful interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Re-orient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

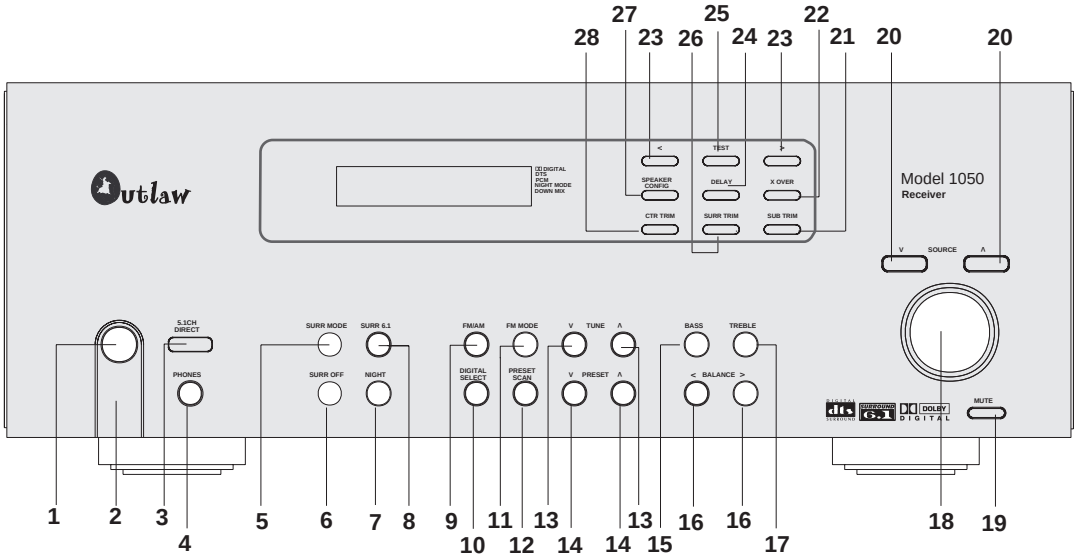
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept interference received, including interference that may cause undesired operation.

Unpacking

The carton and shipping materials used to protect your new receiver during shipment were specially designed to cushion it from shock and vibration. We suggest that you save the carton and packing materials for use in shipping if you move, or should the unit ever need repair.

To minimize the size of the carton in storage, you may wish to flatten it. This is done by carefully slitting the tape seams on the bottom and collapsing the carton. Other cardboard inserts may be stored in the same manner. Packing materials that cannot be collapsed should be saved along with the carton in a plastic bag. If you do not wish to save the packaging materials, please note that the carton and other sections of the shipping protection are recyclable. Please respect the environment and discard those materials at a local recycling center.

Front Panel Functions



1. POWER ON / OFF
   The POWER button switches the unit ON/OFF.

2. STANDBY/MUTE LED indicator
   This yellow LED indicator will illuminate when 1050 is switched off via the remote control or the front panel Power On/Off button. The indicator will flash if the MUTE function is selected via the button on the remote control or the front panel.

3. 5.1 CH DIRECT
   Use for selecting the 5.1 direct inputs.

4. PHONES
   Headphones can be plugged into this jack. Rotate the master volume knob to adjust the sound level.

5. SURR MODE
   Press this button to cycle through the different surround modes. See the Operations section for more details.

6. SURR OFF
   Press this button to turn the center and surround channels off and switch the unit into stereo mode.

7. NIGHT MODE
   Press to select night mode, then press ADJ(<) or ADJ (>) to adjust. See the Operations section for more details.

8. SURR 6. 1
   This button turns the 6.1 surround mode on/off. 6.1 surround mode is only available with Dolby Digital 5.1 signals.

9. FM/AM
   Press this button to toggle between the AM and FM tuners.

10. DIGITAL SELECT
    Press to toggle through the digital inputs - optical 1, optical 2, coaxial, analog. See the Operations manual for more details.

11. FM MODE
    Press to toggle between STEREO/MONO mode when receiving FM broadcasts.

12. PRESET SCAN
    This button scans the local AM/FM stations and stores them into memory.

13. TUNING (UP/DOWN)
    Press the up/down button to tune radio stations.

14 PRESET
    In TUNER mode, press preset up/down button to select the preset stations.

15. BASS
    Press this button to select bass adjust mode. Press ADJ (<) or ADJ (>) button to adjust the bass level.

16. BALANCE
    Press this button to select the balance adjust mode. Press (<) or (>) button to adjust the sound level coming from the front left and right speakers.

17. TREBLE
    Press this button to select treble adjust mode. Press ADJ (<) or ADJ (>) button to adjust the treble level.

18. VOLUME
    Rotate the volume knob to adjust the volume level up or down.

19. MUTE
    Press to decrease the sound level. Press again to return the sound to its previous level.
    The STANDBY/MUTE indicator will flash when it is in MUTE mode.

20. SOURCE UP/DOWN
    Press to select the input source. The unit will cycle through DVD/Video 1/Video 2/Video 3/ FM/AM/CD/Tape/Aux.

21. SUB TRIM
    Press this button to trim the subwoofer speaker's volume level. Using the ADJ (<) or ADJ (>) buttons, you can trim the center speaker volume -10dB to +10dB.

22. X OVER
    Press this button to select the frequency point at which the lower frequencies are shunted to the subwoofer output jack. Use the ADJ (<) or ADJ (>) button to cycle through 60/80/100/120/ 150/200 Hz. Please see the set-up and Configuration section for more details.

23. ADJ </>
    Press (<) or (>) to adjust TREBLE, BASS, BALANCE, CENTER, SURROUND, SUBWOOFER, or DELAY TIME levels.

24. DELAY
    Press this button to select the AC-3 center delay, AC-3 surround delay or Dolby surround delay.

    • In AC-3 center mode, press (<) or (>) button to adjust delay time of the center speaker: 0mS, 1mS, 2mS, 3mS, 4mS, or 5mS.
    • In AC-3 surround mode, press (<) or (>) button to adjust delay time of the surround speakers: 0mS, 5mS, 10mS, or 15mS.
    • In Dolby surround mode, press (<) or (>)to adjust delay time of the surround speaker: 15mS, 20mS, 25mS, 30mS.

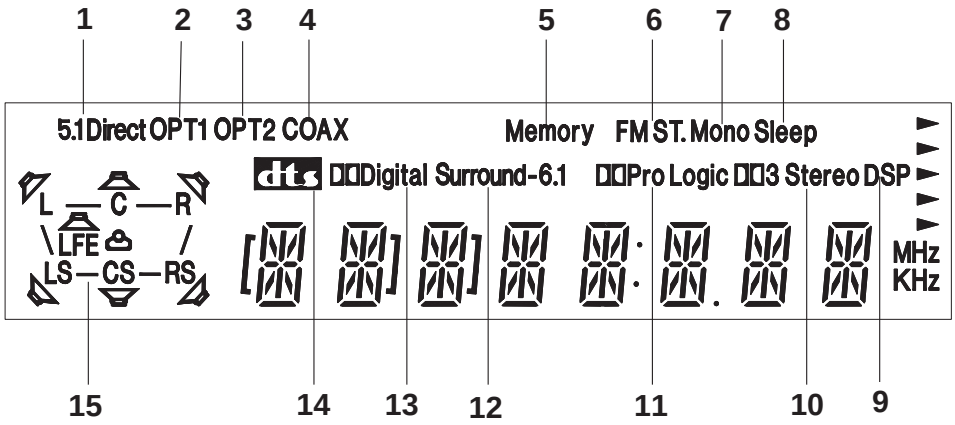
25. TEST
    When pressed, this button cycles a test tone through all the connected speakers. You can adjust the levels of each speaker with the remote control as the test tone cycles.

26. CTR TRIM
    Press this button to trim the center speaker's volume level. Using the ADJ (<) or ADJ (>) buttons, you can trim the center speaker volume -10dB to +10dB.

27. SPEAKER CONFIG
    This function is used to set the speakers on "Small or Large". See the operations section for details.

28. SURR TRIM
    Press this button to trim the surround speaker's volume level. Using the ADJ (<) or ADJ (>) buttons, you can trim the volume -10dB to +10dB.

Fluorescent Display



1. 5.1 DIRECT
   Illuminates when the 5.1CH DIRECT mode is selected.

2. OPT1
   Illuminates when the Optical Digital Input Number One is selected.

3. OPT2
   Illuminates when the Optical Digital Input Number Two is selected.

4. COAX
   Illuminates when then the Coax Digital Input is selected.

5. MEMORY
   Illuminates if station has been stored to a TUNER memory in TUNER mode.

6. FM ST.
   Illuminates when an FM broadcast is being received in stereo.

7. MONO
   Illuminates if you select the mono function in TUNER mode.

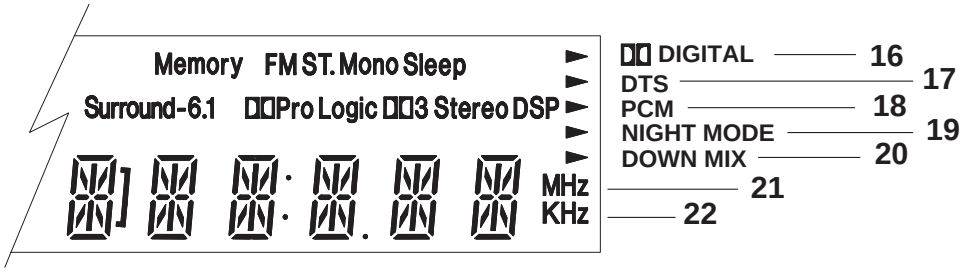
8. SLEEP
   Illuminates if you select the sleep timer function.

9. DSP
   Illuminates when a DSP Mode is selected.

10. DOLBY 3-channel STEREO
    Illuminates when the Dolby 3-channel Stereo decoding mode is selected.

11. DOLBY PRO-LOGIC
    Illuminates when the Dolby-Prologic mode is selected.

12. SURROUND - 6.1
    Illuminates when the Surround 6.1 mode is selected.



13. DOLBY DIGITAL
    Illuminates when the Dolby Digital decoding mode is selected.

14. DTS
    Illuminates when the DTS decoding mode is selected.

15. SPEAKER INDICATORS
    Illustrates which speaker channels are active in the various decoding modes and in test mode. See the illustration below for speaker positions.

16. DOLBY DIGITAL
    Illuminates when a Dolby Digital bitstream is detected.

17. DTS
    Illuminates when a DTS bitstream is detected.

18. PCM
    Illuminates when a PCM bitstream is detected.

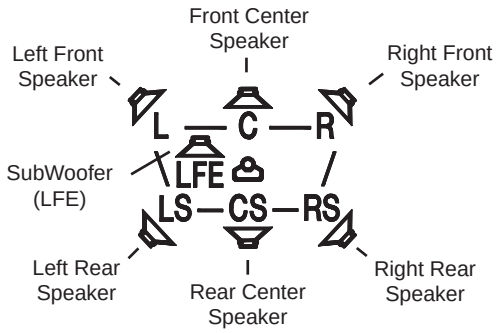
19. NIGHT MODE
    Illuminates when Night Mode is selected

20. DOWN MIX
    Illuminates when the Down Mix mode is selected.

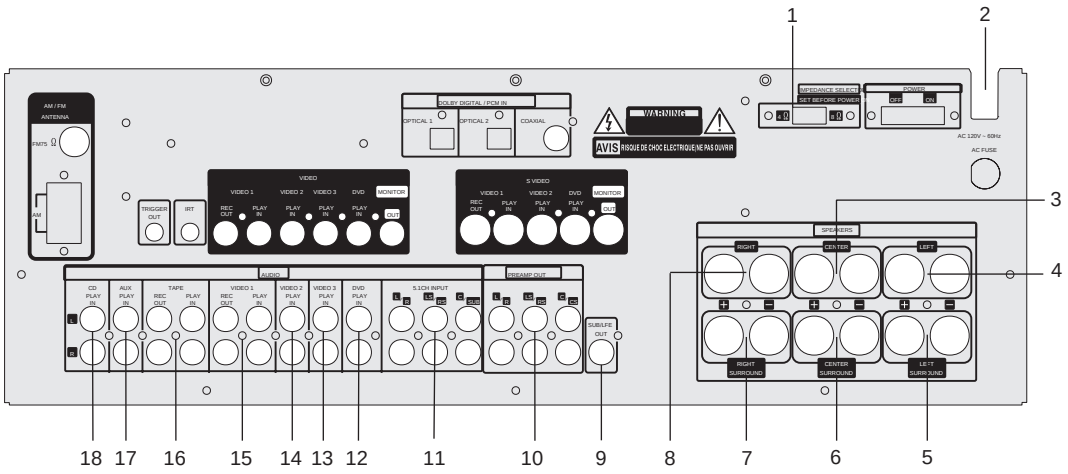
21. MHz
    Displays the frequency of the tuned FM radio station.

22. KHz
    Displays the frequency of the tuned AM radio station.

Fluorescent Display Speaker Locations



Rear Panel Connections



1. IMPEDANCE SELECTOR (4/8ohm)
   Use this switch to optimize the 1050 for the characteristic impedance of your speaker system. *Note: Position this switch only when the unit is turned off.*

2. AC 120V/60Hz
   Power cord.

3. CENTER SPEAKER CONNECTION
   Connect the center front speaker here.

4. LEFT SPEAKER CONNECTION
   Connect the left front speaker here.

5 LEFT SURROUND SPEAKER CONNECTION
   Connect the left surround speaker here.

6. CENTER SURROUND SPEAKER CONNECTION
   Connect the center surround speaker here.

7. RIGHT SURROUND SPEAKER CONNECTION
   Connect the right surround speaker here.

8. RIGHT SPEAKER CONNECTION
   Connect the right front speaker here.

9. SUB/LFE SPEAKER CONNECTION
   Connect the powered subwoofer speaker here.

10. PRE-AMP OUTPUTS
    Connect external amplifier(s) here.

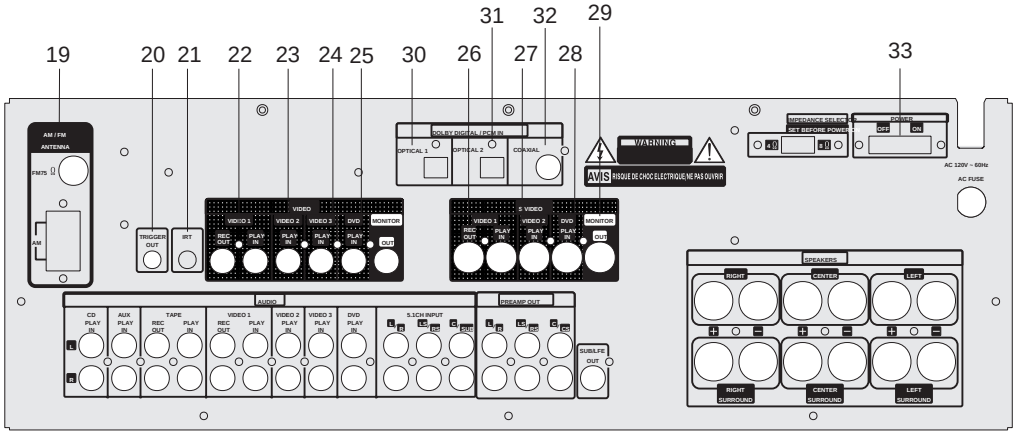
11. 5.1 CHANNEL AUDIO INPUT
    Connect external 5.1 audio sources here.

12. DVD AUDIO INPUT
    Connect your DVD player's audio cable here.

13. VIDEO 3 AUDIO INPUT
    Connect an audio source here.

14. VIDEO 2 AUDIO INPUT
    Connect an audio source here.

15. VIDEO 1 AUDIO INPUT / REC OUT
    Connect a VCR here. Connect the IN jacks of the 1050 to the Play/Out jacks of the VCR and the OUT jacks to the REC/IN of the VCR.



16. TAPE MONITOR LOOP
Connect tape deck or other audio equipment here.

17. AUX PLAY IN
Connect any audio source here.

18. CD PLAY IN
Connect CD Players here.

19. AM/FM ANTENNA CONNECTIONS
AM - connect the AM loop antenna
FM 75 ohm - connect a 75 ohm FM antenna.

20. TRIGGER OUT
Outputs a 12VDC signal to trigger other devices on.

21. IRT
Remote signal output to control other devices.

22. VIDEO 1 (PLAY IN/REC OUT)
Connect your VCR, DVD or LD here. The <OUT> is for record.

23. VIDEO 2 INPUT
Connect your VCR, DVD or LD here.

24. VIDEO 3 INPUT
Connect your VCR, DVD or LD here.

25. DVD VIDEO INPUT
Connect your DVD Player here.

26. S-VIDEO INPUT 1
Connect an S-Video source here.

27. S-VIDEO INPUT 2
Connect an S-Video source here.

28. S-VIDEO DVD INPUT
Connect an S-Video source here.

29. S-VIDEO OUTPUT
Loops through S-Video signals from the Video 1, Video 2 or DVD inputs

30. OPTICAL DIGITAL AUDIO INPUT #1
Connect the optical digital output from your A/V source here.

31. OPTICAL DIGITAL AUDIO INPUT #2
Connect the optical digital output from your A/V source here.

32. COAXIAL DIGITAL AUDIO INPUT
Connect the coax digital output from your A/V source here.

33. MASTER POWER
Master power on/off switch

Remote Control Functions

Your Model 1050 remote control will not only operate your receiver, but will also operate most brands of infrared remote-controlled audio and video equipment.

Installing Batteries

On the back of the remote, push the tab and lift off the battery cover. Obtain two (2) fully charged AA alkaline batteries (Included). Match the + and - marks on the batteries to the + and - marks in the battery case, then insert the new batteries. Press the battery cover back into place. The tab should click when the cover is locked. Test the unit by pressing PWR and any mode key (e.g. AUX, CBL, VCR, etc.). If the batteries are inserted correctly, the LED will blink once.

NOTE: When batteries need replacement, the remote will blink twice with every key press. Simply replace them and the remote control will be restored to its full functionality, including favorite settings.

Using Your Remote Control

Note: Be sure to first press the <TNR> button when operating your receiver with the remote. The remote control will remain tuned to the <TNR> (or Receiver) mode until another mode is chosen. Be sure to point the remote control toward the remote sensor on the front of the Receiver.

Button 1 PWR -Power
Press to turn the Receiver ON or OFF.

2-8 Equipment Select - These buttons are used to switch the remote into the mode selected

9 **TNR button - use this button to put the remote into the receiver control mode**

10-18, 20
NUMBER buttons - When the remote is in the TNR mode, use these buttons to select a radio station preset. When the remote control is in the TV, VCR, or CABLE mode, use these buttons to select a TV channel.

19 MUTE
Press to turn the sound off. Press again to return the sound to its previous level.

21 ENTER - Use this button to enter selections

22,23 VOL - Volume up/down
Press to adjust the sound level up and down.

24 X OVER - Selects the subwoofer crossover mode. Press ADJ (<) or (>) button to adjust.

25 SLEEP - Selects the sleep mode.

26 DIGITAL- Selects the digital inputs.

27, 28 CHANNEL - Preset Channel Selection Up/Down. Press to select AM /FM stations in <TNR> mode.

29 TEST - Selects the test mode. Use to adjust output level of the front, center, surround and subwoofer speakers.

30 SPKR - Speakers, use this button to select speakers connected for setting bass redirection.

31, 32 SELECT UP/DOWN- Function keys for selecting different options.

33, 34 SELECT LEFT/RIGHT- Function keys for selecting different options.

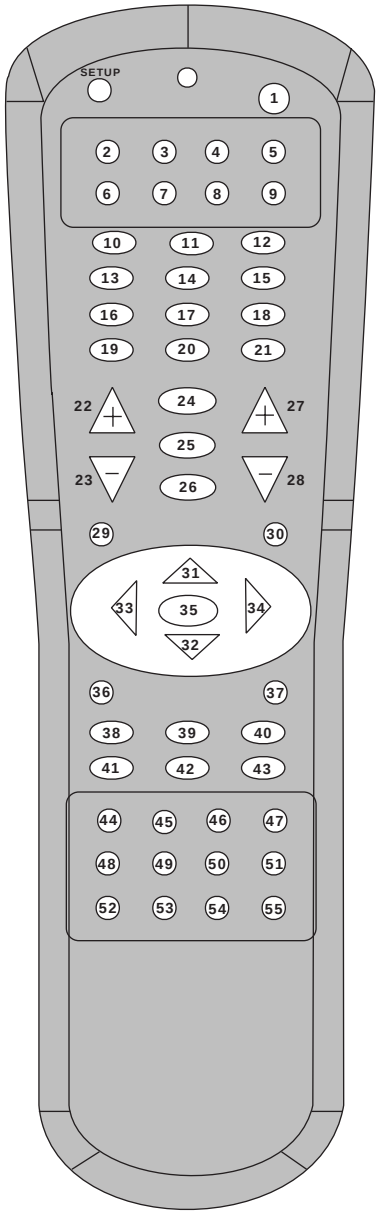
35 SELECT - Press to select options.

36 MODE - Press to turn center and surround off.

37 MONO - In tuner FM mode,you are able to switch to the mono mode.

38 PRESET DWN - In tuner mode, press preset down button to select the required preset station.

39 P. SCAN - Press Preset Scan for 5 seconds to memorize radio stations



IMPORTANT NOTE: Always select the desired mode first by pressing the MODE SELECT (TNR, TV, VCR, CABLE, or AUX) button. Then, press the desired feature buttton (PLAY, SEARCH,etc.). The remote control will remain tuned to the selected mode until another mode is chosen.

Press TNR to control the Receiver, Press TV to control theTV, Press VCR to control the VCR, Press CABLE to control the Cable Controller Box, Press AUX to control your CD Player or LD Player.

40 PRESET UP - In TUNER mode, press preset up button to select the required preset station.

41 DELAY - Press this button to select delay time mode: Dolby Digital center delay, Dolby Digital surround delay or Dolby surround delay.

• In Dolby Digital center mode, press (right) or (left) button to adjust delay time of the center speaker: 0mS, 1mS, 2mS, 3mS, 4mS,or 5mS.
• In Dolby Digital surround mode, press (right) or (left) button to adjust delay time of the surround speakers: 0mS, 5mS, 10mS,or 15mS.
• In Dolby surround mode, press (right) or (left) to adjust delay time of the surround speaker: 15mS, 20mS, 25mS, 30mS.

42 FM/AM - Cycles between AM/FM mode.

43 MEMORY - Press to enter AM/FM stations into memory.

44 VID 1 - Selects Video Input number one.

45 VID 2 - Selects Video Input number two.

46 VID 3 - Selects Video Input number three.

47 DVD - Selects DVD Video input.

48 CD - Selects CD Audio input.

49 AUX - Selects Aux Audio input.

50 TAPE - Selects Tape Audio input.

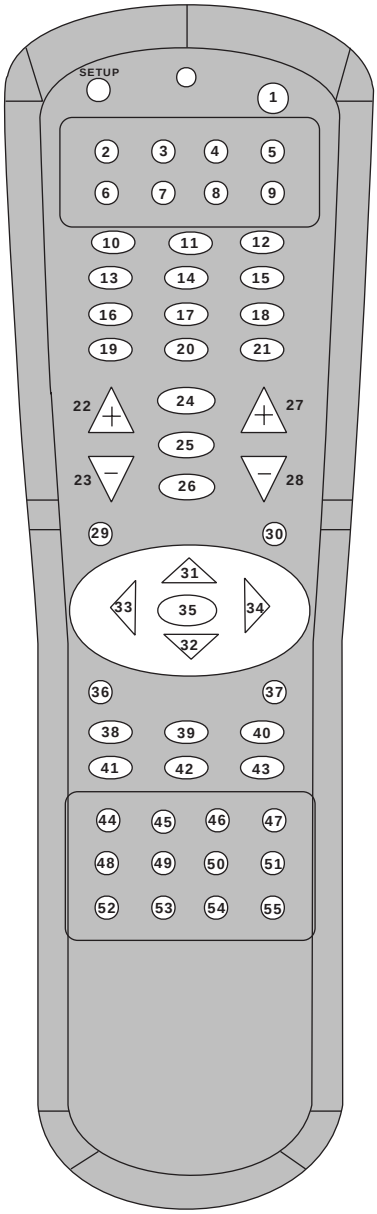
51 6 CH - Selects 5.1 Direct Audio input.

52 SURR 6.1 - Press this to toggle the 6.1 surround mode on or off.

53 CTR TRIM - Press this button to trim the level of the center speaker. Press ADJ (<) or ADJ (>) button to adjust the level.

54 SUR TRIM - Press this button to trim the level of the surround speakers. Press ADJ (<) or ADJ (>) button to adjust the level.

55 SUB TRIM - Press this button to trim the level of the subwoofer output. Press ADJ (<) or ADJ (>) button to adjust the level.

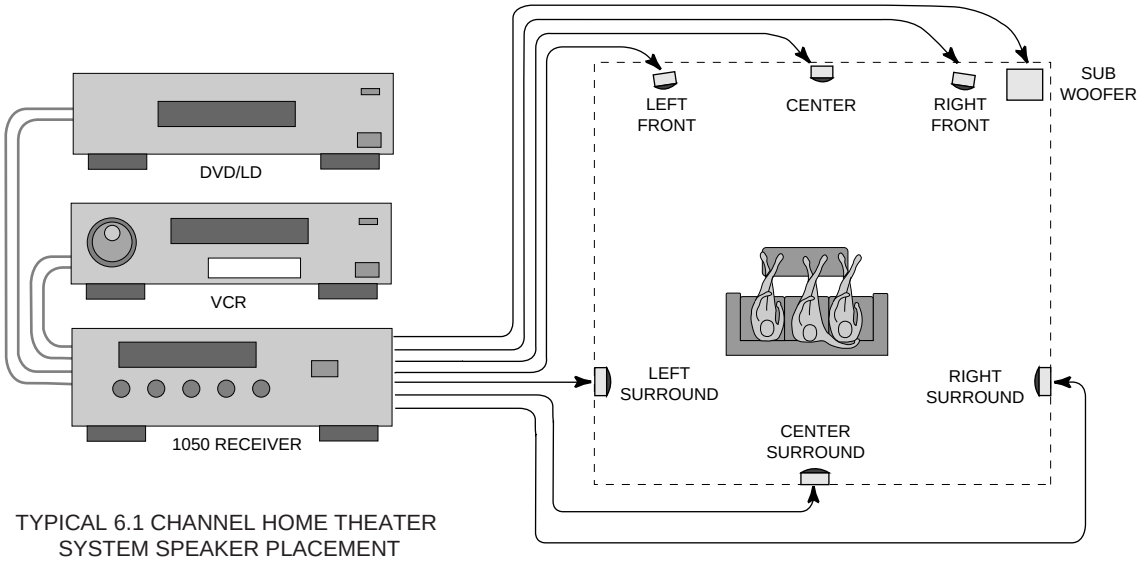


Installation

To get the best possible performance from your new Model 1050 receiver, it is important to determine the proper placement of your loudspeakers. In a typical surround-sound system there are five main speakers: left, center, and right speakers in front of the viewing/listening area, and two surround speakers at the sides or back. Today, most systems also have a dedicated bass speaker, known as a subwoofer, to handle very low-frequency sounds. And, if you take advantage of the Model 1050's Surround 6.1 mode, you will need a third surround speaker directly behind the viewing/listening area.

The center speaker should go directly above or below your television screen. (If you are using a direct-view television, make sure the center speaker is magnetically shielded to prevent picture distortion.) The other two front speakers should be placed equal distances to the left and right of the screen. A good way to start, if practical in your room, is to place the left and right speakers so that they form the base of an equilateral triangle, with your listening position at the apex. You can experiment later with moving the speakers closer together and farther apart, to see what gives you the best overall sound. You may also wish to angle the speakers slightly so that they point towards the listening position, or move them slightly forward. Try to place the front speakers so that their tweeters are not too far above or below seated ear height. And, though it is not critical that the center speaker be at exactly the same height as the left and right fronts, you should do what you can to minimize any discrepancy.

Though often called “rear” speakers, the left and right surround speakers usually will work best if placed directly to the sides of the listening area or slightly back of it along the side walls. (You should definitely place the surround speakers this way if they are dipole or THX types.) They can be placed behind the listening area if necessary, however. For best results, the surround speakers should be located above seated ear height but not so high that they are up against the ceiling. Again, don’t



TYPICAL 6.1 CHANNEL HOME THEATER SYSTEM SPEAKER PLACEMENT

despair if your room forces you to bend the “rules” (after all you are now an Outlaw!) Surround speaker placement is not as critical as front speaker placement. Different approaches can work well in a pinch, including such seemingly unorthodox methods such as putting the speakers on the floor facing up toward the ceiling. However, try to avoid wild asymmetries, especially in a 6.1-channel setup.

The subwoofer should be placed so that it produces a good blend with the main speakers with smooth, extended low-frequency output. If you have a powered subwoofer crossed over at 100 Hz or below (more on that later), the best place is almost always the corner of a room a few feet away from any open doorways. If it must be crossed over at a higher frequency or if you have a packaged system consisting of small satellites and a common bass module, which typically have fixed crossovers somewhere between 150 and 200 Hz, make sure that the subwoofer is in the front of the room rather than the back. It may also be necessary to put the subwoofer between the front left and right speakers, near the center, to keep male voices from seeming to wander. For any type of separate woofer or subwoofer, however, the best placement will normally be next to at least one wall.

CONNECTING THE SPEAKERS

Connect speakers to the 1050 with AWG-16 or heavier (e.g. AWG-14 or AWG-12), two-conductor, stranded copper wire. (If you plan to run any wires inside walls, they must conform to building and electrical safety codes. You may wish to consult a local electrical contractor or installer about this before proceeding with in-wall installation.) Cut the wire to the lengths necessary to reach from the back of the 1050 to the various speaker locations, with a little to spare in case you need to move things around a little in the future. Do not coil excess wire. This can induce hum into your system. You do not want to have a large bundle or coil of excess wire.

The 1050's back panel has a pair of binding posts for each speaker output, which will accept bare wire, spade lugs, and banana plugs. The simplest way to connect the speakers is with bare wire. First loosen the plastic nuts on the 1050's speaker outputs to expose the through-holes in the metal posts. Then carefully strip about 1/2 inch of insulation from the wire ends and twist the strands of each conductor tightly together so that they can fit easily through those holes. Be careful not to nick the wire strands.

Notice that the 1050's binding posts are color-coded: red for positive, black for negative, or ground. There will be some similar identification on the inputs to the speakers. To maintain correct phasing between the speakers in the system, it is important that all connections be made with the same polarity. That is, if you connect red to red and black to black for one speaker in the system, you should do the same for all. Sound quality will deteriorate if you do not maintain consistent speaker phasing.

Note: One of the two conductors of each speaker wire will always have an identifying marking on its insulation, usually a colored stripe or a ridge. These markings can help you make sure all your connections are correct. Just adopt a convention, such as always connecting red terminals to the striped or ridged conductor. Insert the appropriate bared-wire ends through the holes in the binding posts on the 1050 and screw finger tight the plastic nuts (do not use tools). Connect the other ends to the matching speakers. For example, the center speaker output on the 1050 should go to the center speaker, right front output to the right front speaker, and so on. Make sure that no wire strands from the positive and negative conductors touch each other or bridge from one terminal to the other or on the receiver and speaker ends of the wire.

If you have a powered subwoofer, connect its input to the 1050's subwoofer output using a shielded audio interconnect cable with RCA pin plugs on both ends. Do not use an unnecessarily long cable. In the unlikely event that the subwoofer does not have an RCA input jack, check its manual for connection instructions.

If you have a satellite/subwoofer system, consult its manual to see if there are any special instructions for connections. For example, some require that all speaker connections from the receiver be made to the bass module, which is then connected to all the satellite speakers.

AUDIO CONNECTIONS

You are now ready to connect the other components of your system to your Model 1050. Looking at the back of the receiver, you will see an array of signal input and output jacks to the left of the speaker terminals. At the top are the three digital audio inputs. Below them are the video jacks, and along the bottom are the analog audio jacks.

Analog audio connections. Using shielded audio cables with RCA pin plugs at each end, connect the left and right output jacks on source components such as a DVD player, CD player, and VCR, to the corresponding Play jacks on the back of the 1050. (If you want to record from a source such as a DVD player, make an analog connection, in addition to the digital link, even if you use one of the digital inputs for most listening.) Any device used for audio recording, such as a cassette, MiniDisc, or CD-R deck, should be connected to the Tape input, and any device used for video recording, such as a VCR, should be connected to the Video 1 input. These inputs are flanked by Record Out jacks that should be connected to the audio Rec In inputs on the recorders. Again, always take care to connect left to left and right to right. Interconnect cables usually have a standard color coding of red for right and white for left.

5.1-Channel External Processor Connection. In addition to the standard stereo audio inputs, the 1050 has a six-channel analog input designed to accept the output from a product with a built-in surround decoder. Since the 1050 does an excellent job of decoding all current A/V surround formats, this input is intended primarily as a means of accommodating emerging multichannel music formats, such as DVD-Audio and Super Audio CD (SACD). It can also be used to accept the multichannel output from a DVD player or HDTV converter that has built-in 5.1-channel Dolby Digital or DTS decoding. However, you will get better results making a digital connection from the player and allowing the 1050 to handle Dolby Digital and DTS decoding internally. For those who wish to use the 5.1 channel input as a “CD direct” input, simply connect the left and right outputs of the source device to the left and right jacks of the six-channel analog input. This allows one to bypass the 1050’s DSP modes with the result that the sound signals are affected only by the pre-amp and volume controls

If you use this multichannel input, note that in all modes, except 6.1, it bypasses the 1050's bass management and crossovers. This makes it a good option for use with the analog outputs of a CD player or phono pre-amp where you wish to listen to the source directly.

Digital Audio Connections. The 1050 has two Toslink optical digital inputs and one coaxial digital input. Connect the digital outputs from digital audio sources here. You must make a digital connection from your DVD player in order for the 1050 to decode Dolby Digital or DTS soundtracks. (The receiver will automatically determine what type of digital signal it is receiving-Dolby Digital, DTS, or ordinary stereo PCM.) You may also connect a CD player this way or a satellite TV receiver if it has a PCM digital audio output.

It does not matter which digital input you use for which component, as long as the inputs and outputs match, optical to optical and coaxial to coaxial. Once you have connected a source component to a digital input, you can assign it to the appropriate selector button so that every time you choose that source it will automatically go to the correct digital input. First, select the source, say, DVD, Press the Digital Input button until the legend for digital input you have connected that source to (Optical 1, Optical 2, or Coaxial) appears on the front panel display. That digital input will now “stick” to that source selector button until you specifically choose otherwise.

Although the coaxial digital input jacks are identical to those used for analog audio, you should not use ordinary audio interconnects. Make coaxial digital connections with shielded 75-ohm cables, which normally will be labeled for video. Optical connections require special Toslink fiber-optic cables.

Preamp Outputs. The six-channel preamp outputs carry the same signals that feed the Outlaw 1050's internal power amplifiers. You can use these to feed external power amplifiers. A common configuration is to use the Outlaw Model 750 power amplifier in conjunction with the 1050 receiver. Typically the right front, center front, left front, right surround and left surround speakers are powered by the 750 receiver (165 watts per channel). The rear center channel is powered by the 1050 which produces 90 watts of power in this configuration (90 watts, one channel driven.).

VIDEO CONNECTIONS

The 1050 has composite video and S-video inputs for four sources (labeled DVD and Video 1 through 3). There are also outputs for a VCR (on Video 1) and your TV set or monitor. Match the audio and video inputs, so that when you select, for example, DVD, you get both sound and picture from the DVD player. Connect the Video 1 video recording output to the video input of your VCR or other video recording device. (As noted above, make sure that all audio and video connections for this device are made to Video 1.) Connect the Monitor output to your TV set's video input.

If your TV set has an S-Video input, use it whenever possible. This is especially beneficial for sources such as DVD and satellite TV. Note that the 1050 cannot convert between S-Video and composite-video, so if any of your sources lack S-Video capability you should connect both the S-Video and composite-video monitor outputs from the 1050 to the TV. And if your TV set does not have an S-Video input, make sure that you have made composite-video connections from all video sources to the 1050. This will also be necessary to make recordings to a VCR that has only composite-video connections.

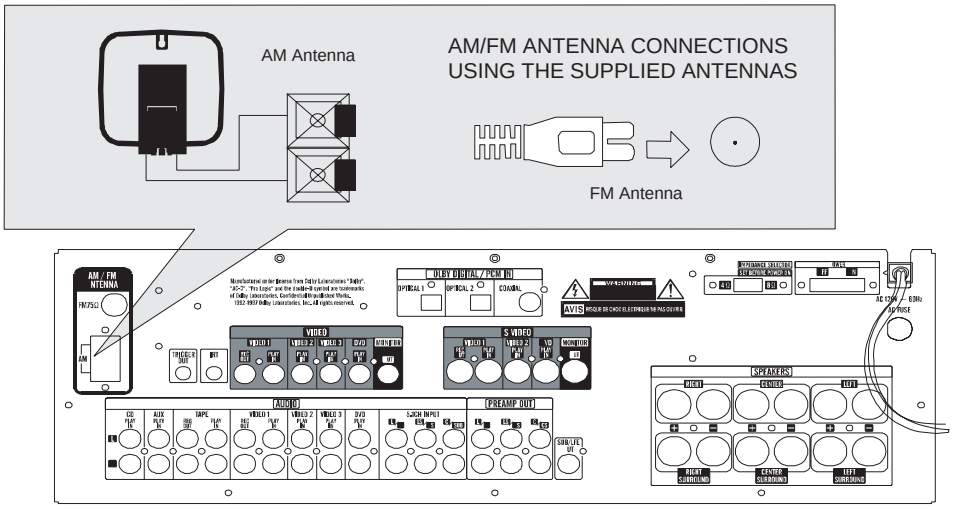
Although the jacks used for composite video are like those used for analog audio, you should not connect to them with ordinary audio cables. You must use shielded 75-ohm cables, which normally are labeled for video use. The standard color code for composite video is yellow. S-Video connections require cables with special connectors.

OTHER CONNECTIONS:

Trigger output. The 1050 has a mini 3.5mm, 12-volt trigger output located to the left of the composite-video jacks. It can be used to control devices with matching trigger inputs so that they turn on and off in sync with the 1050. This connection is directly compatible with the Outlaw Audio Model 750 Power Amplifier, but it may also be used with other products.

IRT output. This 3.5mm mini-phono plug is an infrared transmitter output. It relays signals from the 1050's infrared remote-control eye to components with matching inputs or to an infrared flasher for system control installations.

Antennas. To the far left of the 1050's back panel are a 75-ohm F-connector input for an FM antenna and a twin-lead input for an AM antenna. The receiver is supplied with an AM loop antenna. The leads should be connected to the AM input's spring-clip connectors. There is also a simple wire FM antenna that should be plugged into the FM input. If you have poor FM reception, consider buying a powered indoor FM antenna or installing an outdoor antenna.



Setup and Configuration

Once you have the Outlaw 1050 connected to the rest of your system you are ready to configure it for operation. To get the best performance and sound quality your system can deliver, follow these insructions carefully.

SETTING THE SPEAKER IMPEDANCE SWITCH

Looking at the back panel, you will see, just to the left of the master power switch, a red, two-position slide switch labeled IMPEDANCE SELECTOR. This switch optimizes the 1050's power supply for the impedance of the attached speakers. Before proceeding, make sure that the receiver is turned off. **Never adjust the impedance switch when the receiver is on.**

The speakers' nominal impedance should be printed somewhere on the back panel or in the Owner's Manual. If all of the speakers are listed as 6 ohms or higher, push the switch to the right, to the 8-ohm setting. If the speakers are listed as 4 ohms (lower is unlikely), push it to the left, to the 4-ohm position.

What about a system in which only some of the speakers are 6 ohms or higher? In that case, make your decision based on the impedances of the front speakers, which are the ones that do the bulk of the work (the center speaker, especially). If any of the front speakers have a 4-ohm or lower impedance, set the switch to 4 ohms. Otherwise, set the switch to 8 ohms.

After you have set the impedance switch, turn the master power switch on. You are now ready for speaker configuration.

SPEAKER CONFIGURATION

For an A/V receiver to function properly, it must know some things about the speakers that are connected to it. In this section we'll explain the key adjustments and how to make them.

Bass management. It is rare to have five or six large, full-range loudspeakers in one room. Consequently, most home theater installations use relatively small speakers, particularly for the center and surround channels. Unfortunately, getting high-level, deep bass (common in modern movie soundtracks) from small speakers is impractical. This is particularly regrettable in the case of the center channel, as it is the main channel for most surround soundtracks and often carries large amounts of low-frequency energy.

The good news is that in the bass frequencies, below 100 Hz or so, our ears pretty much lose their ability to tell which direction a sound is coming from. This means that you can move low frequencies from channels whose speakers can't reproduce them adequately to channels whose speakers can. This is known as bass management.

The Outlaw 1050 handles the bass management for your system automatically, once you have told it which channels have speakers that can handle low bass (designated "Large"), which have speakers that can't (designated "Small"), and whether there is a subwoofer in the system.

Configuring speaker size. To set speaker sizes, look at the front-panel display. At the left you will see an iconic representation of a speaker array with a listener in the center. Push the SPEAKER CONFIG button on the front panel or SPKR on the remote control once, and all the speakers except the front left and right will disappear. You can now use the left and right arrow buttons on the front panel, or on the remote, to switch between the two possible settings: Large or Small.

Press SPEAKER CONFIG again to move to the center speaker and adjust its setting. (For the Center Channel you have the additional option choice of None, which tells the receiver there is no speaker connected to that output.) Repeat this process for the center channel, the left and right surround outputs (which have the same options as the center), the subwoofer output (On or Off), then

back to the front channels. After you are done, wait a few seconds and the display will return to normal operation.

How do you decide which setting to choose for each channel (apart from the obvious Off or None when no speaker is connected)? The answer is that no speaker should be configured as Large unless it is capable of extended low-frequency response at reasonably high levels without obvious distortion. In general, the only speakers that meet this criterion are subwoofers, floor-standing models, or large bookshelf designs with woofers that are 12 inches or longer in diameter. In most systems, the only possible options for a Large setting will be the front left and right speakers. More often than not, the best arrangement will be to set all speakers to Small and let a good subwoofer handle the bass from all channels.

Important note: If you have a satellite/subwoofer system consisting of small satellite speakers connected to the receiver through a common bass module, consult its owner's manual for any special configuration instructions. In this situation you normally will need to tell the receiver that there is no subwoofer connected (unless you have a separate powered subwoofer attached to the 1050's subwoofer output) and that all speakers are Large. The crossovers within the speaker system will direct the signals appropriately.

Setting crossover frequency. When there is a subwoofer in your system, it will receive the signal from the low-frequency effects (LFE, or .1) channel as well as bass from any channels whose speakers you have designated as Small. The crossover frequency is the frequency where this transition occurs. The 1050 gives you a choice of six crossover frequencies: 60, 80, 100, 120, 150, and 200 Hz.

To set the crossover frequency, press the XOVER button on the front panel or on the remote control. The front-panel display will show "LPF" (For Low Pass Filter) followed by one of the six available frequencies. Use the left and right arrow keys to select the frequency you want.

About the only tricky part of this entire procedure is deciding which crossover frequency to use. This is determined by the low-frequency capabilities of the speakers in your system. Check the frequency-response specifications for your speakers (listed in the owner's manual, or on the speaker manufacturer's Web site), looking for the frequency at which the response is approximately 3 dB down in the bass. For example, it might say -3 dB at 55 Hz or 45 Hz to 20 kHz ±3 dB. Normally you should start by setting the crossover to the frequency closest to the 3-dB point for the least-capable speaker in the system. For example, if your front speakers are listed as being 3 dB down (3 dB) at 60 Hz and the surrounds at 85 Hz, start with 80 Hz. A potential problem is that virtually all powered subwoofers have their own internal crossover circuits. More and more they enable you to disable or bypass their own crossovers, and you should do that if the option is available. It is better to let the 1050 handle the chore. But if you can't, you have essentially two options. One is to set the crossover frequency in the subwoofer itself as close as possible to the one you are using in the receiver. This may work pretty well in some cases; if it doesn't, you probably will hear some odd response holes and bumps near the crossover frequency. The other option is to set the subwoofer's internal crossover to the highest possible frequency, to get it out of the way.

After you have finished the remaining steps in this chapter, you may want to go back and experiment with the crossover setting, to see if going a step up or down delivers a better overall result. The desired effect is to reproduce high-level bass sounds without distortion while maintaining a smooth transition between the main speakers and the subwoofer. At the same time, you do not want the subwoofer to become a localizable sound source, which can become a problem if the crossover is set too high. It is therefore desirable to keep the crossover frequency at 100 Hz or below if practical; 80 Hz is often just about ideal, provided, again, that all the speakers in the system can operate comfortably down to that level.

The Center Surround Channel. Dolby Laboratories recently developed an extension to the Dolby Digital 5.1 surround standard, which is known as Dolby Digital Surround EX® in theaters and Surround EX® in the home. It encodes a third, center surround channel into the discrete signals for the left and right surrounds. Surround EX cinema soundtracks are therefore fully compatible with standard 5.1-channel playback systems, but with the appropriate decoding circuits and a third

surround speaker directly behind you, you can extract and reproduce the center surround channel. This third surround channel allows soundtrack mixers to create a more seamless surround environment and more exciting special effects.

The 1050 uses Outlaw's proprietary Surround 6.1 mode to decode the Surround EX center surround channel, and an amplifier channel to drive the sixth speaker. There are a number of good ways to set up the speakers for this. The main thing to remember: Just as the center speaker's tonal character should match that of the front left and right speakers, and the character of the left and right surrounds should be a close match to that of the fronts, the center surround speakers should match well to the left and right surrounds. Often, the best way to do this will be to use the same model speaker for all three surrounds.

Single center surround speaker. The easiest set up for Surround 6.1 is a single speaker directly behind the listening area. Placement should otherwise be similar to that for the other two surround speakers.

Dual center surround speakers. Some people prefer the sound created by a pair of speakers for the center surround channel, especially when the left and right surround speakers are directly to the sides of the listening area. For this method, wire a pair of identical speakers, in parallel, to the center surround speaker output on the 1050 and space them apart on the back wall of the room so that there is about the same distance from each surround speaker to the next.

There are two easy ways to wire the speakers in parallel. One is to run wires for each speaker directly back to the output terminals on the receiver, so that both are connected directly to the center surround output. The other is to make a direct run from the amplifier to one of the speakers. Then connect wires from the positive (red) terminal on that speaker to the matching terminal on the other and from the negative (black) terminal to its mate on the second speaker. Because running two speakers in parallel will halve the impedance seen by the amplifier channel driving them, you will need to set the Impedance Selector switch on the back panel to 4 ohms. **(The receiver must be turned off when you do this.)**

SETTING CHANNEL DELAYS

Because rooms differ in size and in layout, speaker arrangements differ as well. The 1050 allows you to set delays for the center and surround channels, to ensure that sounds from the various speakers arrive at your ears with the correct relative timing.

Before you begin adjusting the delays, get out a tape measure and determine how many feet each speaker is from your main listening position. Sound travels approximately 1 foot per millisecond, so it is easy once you have this information to figure out the correct delays.

Separate adjustments are required for the digital 5.1 (Dolby Digital® and DTS®) and Dolby Pro Logic® modes. Start with the digital by pressing the DIGITAL INPUT button (DIGITAL SELECT on the front panel) until the red double-D Dolby Digital legend appears in the front-panel display. Now check the mode. The receiver must be in a Surround mode to adjust surround-channel delay, and it must be in either Surround or Dolby 3 Stereo mode to adjust center-channel delay. Press SURR MODE (MODE on the remote) until the display shows the desired setting.

Next, press the DELAY button on the remote or front panel. In the iconic representation of the speaker array at the left of the display, all the icons except for the listener and the left and right surround speakers will disappear; directly to the right will be a readout of the surround-channel delay. Use the left and right arrow keys to step between settings, which are in 5-millisecond (mS) increments from 0 to 15 mS.

The correct setting is based on the difference between the distance from your listening position to the front left and right speakers (which should be the same) and the distance from your listening position to the left and right surround speakers. Subtract the distance to the surround speakers, in feet, from the distance to the front speakers. Set the delay as close as you can to that number of milliseconds. (When the difference is close to halfway between two settings, round up.) If the difference is zero or negative, set the delay to 0 mS.

Press DELAY again to switch to the center

delay mode. In this case, subtract the distance from the listening position to the center speaker (in feet) from the distance to the left and right speakers. Use the left and right arrow keys to adjust the delay between 0 and 5 mS in 1-mS increments. Set the number of milliseconds of delay as close as possible to the calculated difference in feet. If the difference is zero or negative, set the delay to 0 mS.

The adjustment for Dolby Pro Logic is only slightly different. Begin by pressing DIGITAL SELECT on the front panel or DIGITAL INPUT on the remote until the blue Pro Logic legend lights up in the display. Again make sure that the receiver is in Surround mode; if it is not, press SURR MODE (MODE on the remote) until it is. Press DELAY. In this mode, only the surround-channel delay is adjustable, in 5-millisecond increments from 15 to 30 mS. Take the number you used for surround-channel delay in Dolby Digital and add 15 to it. Use the left and right arrow keys to adjust as close to that number of milliseconds as you can, rounding up as necessary.

SETTING CHANNEL OUTPUT LEVELS

The final configuration step is also one of the most critical to achieving good surround sound. You must adjust the gain of the center and surround channels so that a given input level to any channel will produce the same output level from its speaker as that input level would produce from any other speaker in the system when applied to its channel. Incorrect balance between the front left/right channels and the center channel may cause you to lose stereo spread or dialogue intelligibility. In addition, if the surround channels are too soft relative to the fronts you will not hear a realistically enveloping sound field. Conversely, if they are too strong, the surround speakers may jump out at you distractingly as obviously discrete sound sources.

Calibration by ear. The Outlaw 1050 incorporates a built in test-signal generator for output level adjustments. Make this adjustment when the listening room is quiet. Begin by making sure that the red double-D Dolby Digital logo is illuminated in the display. If it isn't, press DIGITAL SELECT or DIGITAL INPUT until it comes on. If you have a center surround speaker in your system, you should see "Surround 6.1" following the Dolby Digital logo. If you don't, press SURR 6.1 to make it come on. Also check to be sure the receiver is in Surround mode; press SURR MODE (MODE on the remote) until it is. All the speakers in the system should now be showing in the iconic representation to the left of the display.

Turn the volume control all the way down to "0" and press the TEST button. Next, increase the volume control until you hear the test tone at a comfortably loud level coming from one of the speakers. This signal will circulate clockwise around the main speakers in your system, starting with the left front, and finally to the subwoofer.

Adjust the levels of the center and surround speakers and the subwoofer relative to the level of the front left/right speakers. Listen to the entire signal cycle a few times before you do anything, to get a feel for the relative volumes of the speaker. While the signal is coming out of a speaker, use the left and right arrows to adjust its volume. Repeat this procedure until each speaker has same volume level.

Calibration with a sound-level meter. Although you can do a pretty good job of channel balancing by ear, you can do even better with a sound-level (SPL) meter.

When using an SPL Meter, set it to Slow mode with C weighting. Sit in your normal listening position, holding the meter in front of you at about ear level with its microphone pointed toward the ceiling. Now proceed exactly as described above for calibration by ear. Set the receiver's volume control so that the reading on the meter when the signal is coming from the left or right front speaker is about 75 dB. Now, adjust all the other channels to be as close to that as possible. (The meter does not have perfectly flat low-frequency response, so you may want to fine-tune the subwoofer setting by ear using music recordings that have substantial low-bass content.)

The channel trim controls. On the front panel and the remote are trim controls for the levels of the center, surround, and subwoofer channels (CTR TRIM, SUR TRIM, and SUB TRIM). These are handy for making on-the-fly adjustments to your personal taste while listening to music or watching a movie. Just make a note of the original settings, right after calibration, so that you can easily return to them. (See page 45).

Operation

We designed the Outlaw 1050 to be both exceptionally capable and exceptionally easy to use -a rare combination in the realm of contemporary A/V receivers. Here you'll find everything you need to know to get the most out of it.

THE BASICS

Master Power Switch. Next to the AC line cord on the back panel is a rocker switch labeled MASTER POWER. Turning it off completely disconnects the 1050 from the power line. Normally you will want to leave this switch turned on unless you are going to be away for an extended time (such as on vacation). Otherwise, leave it on and use the big green button on the front panel or the PWR button on the remote control instead to switch the receiver in and out of standby mode.

Standby Switch. When the back-panel MASTER POWER switch is on, you can still turn most of the 1050's electronic circuitry on and off from either the front panel or the remote control. Toggle between full-on and standby using either the big green button at the lower left of the front panel or the PWR button at the top right of the remote control. (If you use PWR on the remote, first press TNR, at the end of the second row of small buttons just below, to make sure the remote is set to control the receiver and not some other component in the system.) In standby mode, the receiver is asleep, with its amplifiers and other power-hungry circuits shut down; a yellow LED will light below the green front-panel on/off button when the receiver is in this state. The LED goes off when the receiver turns on and flashes when it is on with the sound muted.

Volume control and muting. Adjust volume with the large knob at the right of the front panel or with the VOLUME + and - buttons on the left side of the remote control. A numerical volume indicator will appear in the front-panel display as you adjust the level. Press MUTE to instantly silence the receiver and again to restore output. The MUTE button is located just below the VOLUME knob on the front panel and just above the VOLUME buttons on the remote control. When the 1050 is muted, any adjustment of the volume, either on the front panel or on the remote, will cancel the mute mode.

Balance control. You can adjust the relative levels of the left and right front speakers with the balance control. This is useful if there is a slight level mismatch between the speakers to begin with or if a stereo recording is slightly out of balance. Press BALANCE on the front panel or SELECT (once) on the remote control. Then use the left and right arrow keys to shift the sound in the direction you want. The front-panel display will show the direction and magnitude of the change.

Tone controls. The 1050 has bass and treble controls for the front left and right channels, which you can use to adjust the tonal balance of stereo recordings. Press BASS or TREBLE on the front panel; then use the left and right arrow keys to cut or boost the sound in the selected range.

Headphone jack. The 1050's front panel has a standard stereo phone jack for headphones. When you insert a plug in this jack, the receiver mutes the speakers and "EARPHONE" appears in the display. (If your headphones have the smaller miniplug termination, you can still use them with the aid of a miniplug-to-phone-plug adaptor.) For proper reproduction over headphones, use the SURR MODE button on the front panel or the MODE key on the remote to set the 1050's audio mode to Stereo (see below).

INPUT SELECTION

When source components are connected correctly to the 1050, it will switch audio and video together. You can also attach each digital input to a source selector so that choosing that source automatically chooses that digital input as well.

Front-panel input selection. Use the up and down

arrow keys, labeled SOURCE, to switch between sources. These buttons cycle from input to input in round-robin fashion.

Remote input selection. The remote control enables direct selection of any input with the oval AM/FM button near the bottom of the remote and the two rows of small, circular buttons just below it. Just press the button for the input you want to choose. Note that the first press of AM/FM will select the tuner with the band (AM or FM) and station last listened to; a second press will switch to the other band.

Digital input selection and attachment. The first time you use a digital input for a source, you must select it by means of the front-panel DIGITAL SELECT button or the remote control's DIGITAL INPUT key. Pressing these keys cycles through the three digital inputs in round-robin fashion.

It is easy to assign digital inputs to the regular source selectors, so that digital inputs are switched automatically along with the analog audio and video inputs. For example, suppose you have attached the digital audio output on your DVD player to the Outlaw 1050's second optical digital input. Choose the DVD player with the source selector on the front panel or with the remote control. Now press DIGITAL SELECT or DIGITAL INPUT until the red "OPT 2" legend appears at the top left of the front-panel display. Simple as that. Now, whenever you select the DVD input, the Optical 2 digital input will be selected as well. You can change these assignments any time you like.

5.1 Channel Direct input. To select input from the 1050's six-channel analog input, press 5.1 CH DIRECT on the front panel or 6 CH on the remote. Although intended primarily to support emerging multichannel music formats such as DVD-Audio and Super Audio CD (SACD), the 5.1 Channel Direct input has other possible uses. For example, since this input normally bypasses all processing in the receiver, it can be used as a straight-through input for any source (such as a CD player) that you want untouched by the DSP.

Note, however, that bypassing the DSP also means bypassing the 1050's bass management. If you select Surround 6.1, the DSP and bass management will be active for the 5.1 Channel Direct input.

MODE SELECTION

The Outlaw 1050 supports essentially all current surround encoding formats, whether digital or analog, as well as ordinary two-channel stereo and multichannel DSP enhancement of stereo recordings. Selection and characteristics of the various formats and modes are detailed below.

Supported audio formats. It is easier to understand the 1050's operation if we make the distinction between audio formats and audio processing modes. An audio format is a way of conveying or encoding an audio signal; an audio processing mode is a method of reproducing an audio signal. These concepts overlap a little, but let's begin with a table of what we're calling audio formats.

Format: Analog
Characteristics: One channel (mono) or two (stereo). This is what we've been getting for years from records, tapes, radio, and TV. Dolby Surround encoding can be used to fold two additional channels, center and surround, into a two-channel signal. Dolby Surround recordings can be played back in mono or stereo, but with Dolby Pro Logic decoding, the center and surround channel can be extracted, restoring the original four channels. (The surround channel, though mono, is normally reproduced through two speakers.)
Modes: Stereo, Surround (Dolby Pro Logic), 3 Stereo, Phantom, Natural, Jazz, Hall, and Stadium

Format: PCM Digital
Characteristics: Currently two-channel stereo with the option of Dolby Surround encoding (see above). Mono is achieved by putting the same information in both channels. This format is used on CD, laserdisc, DAT, and some DVDs of musical programs.
Modes: Stereo, Surround (Dolby Pro Logic), 3 Stereo, Phantom, Natural, Jazz, Hall, and Stadium

Format: Dolby Digital
Characteristics: Carries one to six (5.1) discrete channels of high-quality audio at data rates much lower than possible when using PCM. Used on DVD, most recent laserdiscs, some digital satellite TV transmissions, and the North American digital television (DTV) system. Most DVDs use Dolby Digital for all soundtracks, whether mono, Dolby

Surround encoded stereo, or discrete multichannel (4.0, 5.0, or 5.1). A recent extension to Dolby Digital 5.1, called Dolby Digital Surround EX, uses Dolby Surround techniques to fold a third surround channel into the two surround channels of a 5.1 soundtrack. Outlaw handles Surround EX with its proprietary Surround 6.1 processing mode.
Stereo, Surround (standard discrete, Surround 6.1, or Dolby Pro Logic), 3 Stereo, and Phantom.

Format: DTS
Characteristics: Carries six (5.1) discrete channels of high-quality audio at data rates lower than possible using PCM. Available on special multichannel DTS CDs (DTS decoding required) and on some laserdiscs and DVDs. DTS is an optional audio format on DVD, so a DVD with a DTS soundtracks must also have a PCM or Dolby Digital track. DTS has introduced a process similar to Surround EX, called DTS ES. The Outlaw 1050 does not directly support DTS ES decoding, but those soundtracks will play normally as DTS 5.1.
Modes: Stereo, Surround , 3 Stereo, and Phantom.

If presented with an analog and a digital input from the same source (such as a DVD or CD player), the 1050 will automatically choose the digital signal. It will also automatically detect what sort of digital signal is present (PCM, Dolby Digital, or DTS) and adjust itself accordingly. When a digital input is selected, small red arrows at the extreme right of the display will indicate the type of digital signal that is being received (Dolby Digital, DTS, or PCM) and whether the Downmix or Night mode is activated (see below for details). If a digital input is selected but no digital signal is present, the arrow next to the Dolby Digital legend will flash.

AUDIO MODES

The Outlaw 1050 can also auto-select the audio mode for each input, based on your preferences and the type of signal presented. You can override those preferences and select the mode you want directly. The available modes and their features are described as follows.

Mode: Stereo
Characteristics: Two-channel reproduction through the front left and right speakers. The 1050 will intelligently downmix discrete multichannel Dolby Digital sources as necessary. You can toggle between surround and stereo reproduction with the SURR OFF button on the front panel.
Available With: Dolby Digital, PCM, and analog inputs.

Mode: Surround
Characteristics: DTS input: discrete multichannel surround.
Dolby Digital input: discrete multichannel except for Dolby Surround encoded two-channel soundtracks, which receive digital Dolby Pro Logic decoding. Surround 6.1 processing available.
Dolby Surround encoded stereo (PCM or analog) input: Dolby Pro Logic.
Available With: Stereo (PCM or analog) input: Dolby Pro Logic.

Mode: 3 Stereo
Characteristics: Dolby 3 Stereo. Surround channels are intelligently downmixed into the front left and right channels. Useful mainly in systems that lack surround speakers.
Available With: Multichannel Dolby Digital or Dolby Surround encoded (PCM, Dolby Digital, or analog) signals.

Mode: Phantom
Characteristics: Splits the center channel of a surround soundtrack equally to the left and right front speakers. Useful mainly for reproducing surround music recordings when the center speaker is noticeably inferior to the front left and right speakers.
Available With: Multichannel Dolby Digital or Dolby Surround encoded (PCM, Dolby Digital, or analog) signals.

Mode: Natural
Characteristics: Uses DSP (digital signal processing) to simulate the acoustical characteristics of a large, open space.
Available With: Stereo signals (analog or digital).

Mode: Jazz
Characteristics: Uses DSP to simulate the acoustical characteristics of a small club.
Available With: Stereo signals (analog or digital).

Mode: Hall
Characteristics: Uses DSP to simulate the acoustical characteristics of a concert hall.

Available With: Stereo signals (analog or digital).

Mode: Stadium
Characteristics: Uses DSP to simulate the acoustical characteristics of a stadium.
Available With: Stereo signals (analog or digital).

SELECTING AUDIO MODES

You can switch through the available audio processing modes by pressing SURR MODE on the front panel or MODE on the remote control. When you select a source, the 1050 will automatically switch to the last mode selected for that input.

Surround 6.1. Outlaw Audio's proprietary Surround 6.1 mode is designed to extract the center surround channel from Surround EX soundtracks. If you told the receiver during setup that a center surround speaker is present in your system, the 1050 will automatically activate the Surround 6.1 mode when it is in Surround mode and detects the Surround EX flag in a Dolby Digital input signal. However, early Surround EX DVDs lack the autodetect flag; for those you will have to select Surround 6.1 manually, with the SURR 6.1 button on the front panel or the remote.

In fact, you can manually invoke Surround 6.1 for any multichannel Dolby Digital input or for the 5.1 Channel Direct analog inputs. Because the processing is a type of matrix decoding, it will extract a center surround signal from the surround channels in those signals even if one has not been specifically encoded. The quality of the result will vary on non-encoded material, however. In some cases it can be quite nice, like the "magic surround" sometimes obtained when Dolby Pro Logic is applied to an ordinary stereo signal. At other times you will be better off without it. For example, even some nominally 5.1-channel soundtracks have mono surrounds, and on those , the Surround 6.1 will direct all of the surround information to the center surround speaker.

Note also that Surround 6.1 does not decode the center surround channel from DTS ES data streams. It will work on signals entering through the 5.1 Channel Direct inputs, however. This means that it can extract the DTS-ES center surround if the 5.1-channel DTS decoding is performed externally, with the analog output fed to the 1050 via its six-channel analog input. As noted above, be careful to avoid Surround 6.1 processing of inputs with mono surround channels, which on the 5.1 Channel Direct input could include output from Dolby Pro Logic decoding.

Surround Off. Pressing SURR OFF on the front panel turns processing off and on. Essentially, it is a quick way to toggle between Stereo (surround off) and whatever processing mode has been selected (such as Surround). This can be fun for investigating how surround is (or isn't) used in various soundtracks.

Channel level trims. You can use the CTR TRIM, SUR TRIM, and SUB TRIM buttons, together with the left and right arrow keys, to alter channel balance. This is handy for making on-the-fly adjustments to taste while listening to music or watching a movie. Just make a note of the original, calibrated settings so that you can easily return to them.

Night mode. In Dolby Digital playback, you can activate Night mode, which reduces the dynamic range of the program. (Dynamic range is the loudness difference between the softest and loudest sounds.) This is useful if you want to be able to hear dialogue and other relatively soft sounds in a soundtrack clearly without loud parts, such as explosions in an action film, becoming disturbingly loud. Turn this feature on and off by pressing NIGHT on the front panel. When it is on, a red arrow will light next to the Night Mode legend at the far right of the front-panel display.

TUNER SECTION

The Outlaw 1050 includes a very capable AM/FM tuner section. Here's how to use it.

Tuning. Select the tuner and the desired radio band by pressing FM/AM on the front panel or AM/FM on the remote control. Once the tuner is selected, repeated presses will toggle between bands.

To tune stations, press the TUNE up/down arrow buttons on the front panel or the CHANNEL +/- keys on the remote control. Quick presses will step the tuned frequency in increments of 10 kHz on the AM band and 100 kHz (0.1 MHz) on the FM band. Note that in North America, FM stations are

spaced a minimum of 200 kHz apart at the odd-numbered frequencies (90.1 MHz, 90.3 MHz, etc.).

If you press, briefly hold, and then release one of the tuning buttons, the 1050 will seek in that direction for a receivable station and stop when it finds one.

FM modes. Pressing FM Mode on the front panel or MONO or on the remote control toggles the FM tuner between stereo and mono reception. The mono mode is useful for getting acceptable sound from weak stations that are excessively noisy in stereo.

Entering station presets. The 1050 can hold as many as 32 station frequency presets in memory for instant recall. To store a station frequency in memory, first select the desired band and tune to the station. Then press and hold the MEMORY button on the remote control until a preset number (P followed by two digits) is blinking in the display. Use the PRESET UP and DWN buttons to select the desired preset number. Immediately press the MEMORY button again and hold it until the display stops flashing. The tuned station is now assigned to the selected preset.

Recalling station presets. There are three ways to select stations using the presets.

Direct: Enter the desired preset on the numeric pad near the top of the remote control.

Preset Tuning: Press the PRESET UP/DWN buttons on the front panel or the remote control to step through the station presets.

Preset Scan: Press PRESET SCAN on the front panel or P. SCAN on the remote control. The tuner will advance through the preset stations, pausing briefly on each one. When it reaches the one you want, press the button again to stop the scan.

RECORDING

You can record from the selected source to any recording device connected to the TAPE REC OUT or VIDEO 1 REC OUT jacks on the Outlaw 1050's back panel. The TAPE REC OUT jacks are audio only; the VIDEO 1 REC OUT jacks support both audio and video if both connections are made. You can not record from the digital inputs, however.

SLEEP TIMER

You can set the 1050 to turn itself off automatically after a specified period of time, to a maximum of 90 minutes. Press SLEEP on the remote control, and it will show 90 minutes on the front-panel display. Each additional press of the button will reduce the time by 10 minutes. When you've reached the setting you want for the timer, stop. After a few seconds the display will revert to normal. The receiver will shut itself off after the specified number of minutes later.

TIPS AND TRICKS

While preparing this manual, we came up with a couple of new ideas for how to use certain of the Outlaw 1050's features. We probably will come up with more as time goes on, so be sure to check out our Tips & Tricks page periodically, at **www.outlawaudio.com.**

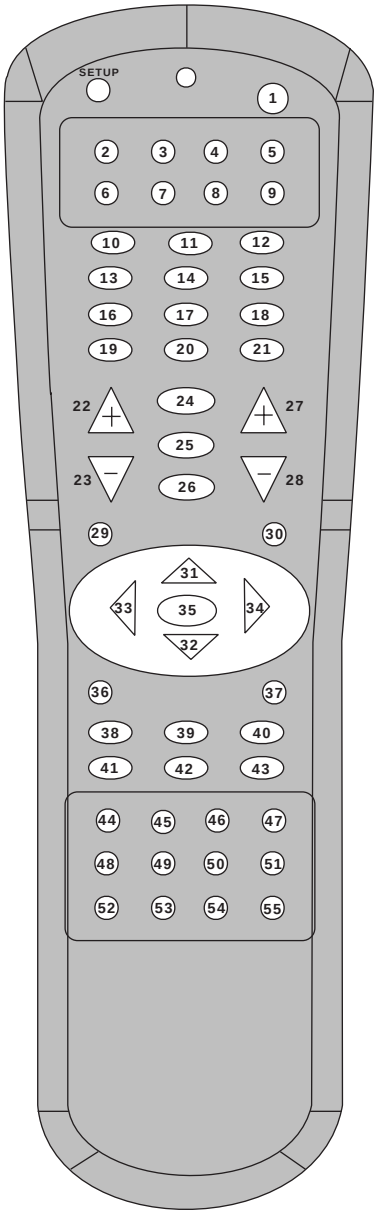
1050 Receiver Troubleshooting

NO POWER	Make sure the power cord is inserted fully into a 120V/60Hz outlet. Check to be sure outlet is not controlled by a wall switch. Unplug the power cord, wait 1 minute, then reinsert the plug and push the POWER button.
NO VOLUME	Check the VOLUME knob on the unit. Make sure the correct feature has been selected. Make sure the speakers are properly connected. Make sure speaker wires are not shorted together. If headphones are plugged in, disconnect them.
REMOTE CONTROL DOESN'T WORK	Check, and if necessary, replace batteries. Make sure the remote control is pointed head-first at the Receiver. Make sure the Receiver is plugged into an operating wall outlet. The remote control may be either too far away from the Receiver or not in front of the Receiver. Make sure the function selected is same as the input source.
CAN'T TUNE RADIO STATIONS	Repeat channel selection. Make sure the antennas are properly connected.

NOTE: Electrostatic discharge can cause unexpected problems. For example, the unit may fail to react to operation of the buttons. In that event, you should reset the unit by disconnecting it from the household wall outlet.

Programming The Remote

The Outlaw 1050's wireless remote can be set up to control as many as seven other audio and video components from practically any manufacturer of consumer electronics equipment, provided that the products have infrared remote-control capability. And the programming procedure is very simple. Just enter the appropriate codes, as described below, from the list that follows this chapter.



BASIC PROGRAMMING

The buttons used to select the component to be controlled are in two rows of four just below the top of the remote. The one at the far right of the lower row, with a white ring around it and labeled TNR, is reserved for the 1050 itself. You can program the remaining seven buttons to operate other components in your system. They are assigned as follows: TV for television sets, VCR for VCRs, CBL for cable-TV boxes, SAT for satellite-TV boxes, CD for CD players, AMP for amplifiers, and AUX for other types of devices (such as DVD players, tape decks, and so forth). Except for the TV, VCR, and AUX buttons, these assignments are fixed. That is, you can't program the CD key to operate a VCR or a cassette deck. For instructions on how to remap the TV, VCR, and AUX buttons, see the Special Functions section.

Step by step. To program a component key, perform the following steps:

1) Go to the list of codes following this chapter of the manual. Find the listings for the type of component you want to control, and then find the name of the manufacturer. There will be one or more four-digit codes next to the manufacturer name.

2) Press the component key you want to program (TV, for example). The keys on the remote should light up, and the LED at the top should blink once.

3) Press and hold SETUP (at the top left of the remote) until the LED blinks twice, then release it.

4) Use the remote's numeric keypad to enter the four-digit code you've selected from the list. Shortly after, the

LED on the remote should blink twice in succession. If it doesn't, the remote has not accepted the code and you should try again.

5) Test by pressing the appropriate component key, pointing the remote toward the component, and pressing the PWR key. (For components that don't support remote power on/off you will have to try another function, such as play. Turn the component on, load any disc or tape that might be necessary for it to function, and press the play key on the remote.)

If the remote accepts a code but won't operate the component, check to see if the list contains multiple codes for that product category and manufacturer. If so, repeat the programming steps above with the other codes, one by one, until you find one that works. In the event that none of them works, try the code search procedure described later on.

PROGRAMMING COMBINATION TV/VCRS

When setting the remote up for a combination TV/VCR, you must program the TV and VCR keys separately.

SEARCHING FOR A CODE

If you can't get any of the codes listed for your brand of a particular component to work with it, or if your brand is not listed for that type of device, try searching for the correct code. Here's the procedure:

1) Press the appropriate component button on the remote (TV, for example).

2) Press and hold SETUP until the LED at the top of the remote blinks twice in succession, then release the button.

3) On the numeric keypad, enter 9 - 9 - 1. The LED will blink twice.

4) Turn the device to be controlled on and aim the remote at it. Alternate slowly between pressing PWR and the component button you are programming until the component turns off.

5) Press SETUP once to lock in the code. The remote should now work with that component.

READING OUT A PROGRAMMED CODE

You can query the remote for the code programmed into any component key. It is a good idea to do this after you have used the code-search procedure described above, so that you can write down the code for future reference. Here's how to do it.

1) Press the component key you want to query (VCR, for example).

2) Press and hold SETUP until the LED at the top of the remote blinks twice in succession, then release it.

3) On the numeric keypad, enter 9 - 9 - 0. The LED will blink twice.

4) To find out the first digit of the code, press 1 once on the numeric keypad and wait 3 seconds. Count the number of times the LED blinks and write it down. That is the first digit of the code. (If the digit is 0, the LED will not blink.)

5) Repeat the above step using the 2, 3, and 4 keys on the numeric keypad. That will get you the second, third, and fourth digits of the code, respectively.

KEY FUNCTIONS FOR PROGRAMMED COMPONENTS

The primary labeling on the remote-control keys is for the Outlaw 1050. Many of these keys will work differently, or not at all, for other components operated from the remote. There is enough diversity in how A/V equipment functions that you may have to experiment a little to figure out all the key mappings for some products. But here are some typical assignments:

Pwr. Turn power on and off.

Numeric keypad. Any function involving direct numeric input, such as direct channel or frequency

selection, cueing to a specific track on a CD, etc.

Enter. Send a number sequence after it has been entered.

Mute. Silence or reduce audio output.

Last. Return to the previously selected channel.

Volume +/-. Turn volume up or down.

Channel +/-. Step up or down channels or frequencies.

Guide. Bring up channel guide.

Exit. Exit from a menu.

Info. Display some set of information, such as tuned channel and time.

Menu. Bring up a menu, such as for setup or adjustment.

Select (and surrounding arrow keys). Menu navigation.

Cluster of six oval transport function keys. Transport functions on CD and DVD players, tape decks, etc.

VID 1. Turn picture-in-picture (PIP) on and off.

SPECIAL FUNCTIONS

The 1050's remote can be programmed to change the functions of the TV, VCR, and AUX component keys and to change which component controls the volume when TV, VCR, CBL, or SAT is selected.

Reassigning component keys. If you have, for example, two VCRs or two CD players in your system, you may want to reassign a component key to work with it. The TV, VCR, and AUX keys can be reassigned to any of the other seven component types. Here's how to do it.

1) On the remote, press and hold SETUP until the LED blinks twice, then release the button.

2) On the numeric keypad, enter 9 - 9 - 2. The LED will blink twice.

3) Press the key for the device type you want to assign followed by the key to which you want to assign it. For example, to turn the AUX key into a second VCR key, you would press VCR followed by AUX. To turn it into a CD key, you would press CD followed by AUX. And so forth. To return a key to its original function, you would simply press it twice (for example, 9 - 9 - 2 -AUX - AUX).

When you have completed reassignment, the LED will blink twice. You will then need to program the key for the device you want it to control.

Remember: Only the TV, VCR, and AUX keys can be reassigned.

Changing volume lock. When TNR, AMP, or CD is selected, the 1050's remote will control volume through that component. When TV, VCR, CBL, or SAT is selected, however, the remote normally will control volume via the TV set. But if you don't want volume control for these devices to be locked to the TV, you can lock it to another component (the 1050 itself, for example). Here's how to do it:

1) On the remote, press and hold SETUP until the LED at the top blinks twice, then release.

2) On the numeric keypad, enter 9 - 9 - 3. Then press the key for the component you want to use to control volume (such as TNR). The LED will blink twice.

To lock volume control to the TV again, perform the above procedure again, pressing TV at the end of the second step.

1050 Remote Troubleshooting

Problem:	LED does not blink when you press a key.
Solution:	Replace the remote's batteries with two new AA alkaline cells.
Problem:	LED blinks when you press a key, but the target component does not respond.
Solution:	Make sure the remote is aimed at the component and no more than 15 feet away from it.
Problem:	Remote does not control target component, or commands do not work properly.
Solution:	Try all codes listed for the brand in the component category; make sure the component can be operated with an infrared remote control.
Problem:	VOLUME doesn't work on a second TV set.
Solution:	Follow the instructions in the section on changing volume lock, page TK.
Problem:	CHANNEL +/- and LAST keys do not work for your RCA TV set.
Solution:	For certain RCA television sets made between 1983 and 1987, only the original remote control will work.
Problem:	Cannot use direct entry to change channels.
Solution:	If original remote requires you to press ENTER after keying the channel number, press ENTER on the 1050 remote after keying the channel number.
Problem:	Could not find a working code for a component, even after using the search method.
Solution:	Clear the component key and repeat the search procedure. To clear the key, press and hold ENTER until the LED at the top of the remote blinks twice in succession. On the numeric keypad, enter 9 - 9 - 2. Then press the component key to be cleared twice.
Problem:	PWR key does not turn on a Sharp or Sony combination TV/VCR.
Solution:	Make sure you have programmed the TV key as well as the VCR key. For Sharp, use TV code 0093 and VCR code 0048; for Sony, use TV code 0000 and VCR code 0032.

Remote Setup Codes

SETUP CODES FOR AMPLIFIERS

Aiwa	0406
Carver	0269
Curtis Mathes	0300
Denon	0160
Harman/Kardon	0892
JVC	0331
Linn	0269
Magnavox	0269
Marantz	0269
Panasonic	0308
Philips	0269
Pioneer	0013, 0300
Sony	0220, 0689
Technics	0308
Victo	0331
Wards	0013
Yamaha	0354

SETUP CODES FOR CABLE CONVERTERS

ABC	0003, 0008, 0014, 0017, 0007, 0011, 0013
Allegro	0153, 0315
Archer	0153, 0797
Bell & Howell	0014
Century	0153
Citizen	0153, 0315
Comtronics	0040
Contec	0019
Eastern	0002
Emerson	0797
Everquest	0015, 0040
Focus	0400
Garrard	0153
Gemini	0015
General Instrument	0476, 0276, 0011, 0810
GoldStar	0144, 0040
Goodmind	0797
Hamlin	0020, 0259, 0009, 0034
Hitachi	0011
Hytex	0007
Jasco	0015, 0153, 0315
Jerrold	0003, 0012, 0476, 0276, 0014, 0015, 0011, 0810
Memorex	0000
Movie Time	0063
NSC	0063
Oak	0019, 0007
Optimus	0021
Panasonic	0000, 0107, 0021
Paragon	0000
Philips	0153
Pioneer	0144, 0533
Popular Mechanics	0400
Pulsar	0000
Quasar	0000
RCA	0021
Radio Shack	0015, 0315, 0797, 0883
Recoton	0400
Regal	0020, 0259
Regency	0002
Rembrandt	0011
Runco	0000
SL Marx	0040
Samsung	0144, 0040
Scientific Atlanta	0008, 0477, 0017, 0877
Signal	0015, 0040
Signature	0011
Sprucer	0021
Starcom	0003, 0015
Stargate	0015, 0040, 0797
Starquest	0015
TV86	0063
Teleview	0040
Tocom	0012, 0013
Toshiba	0000
Tusa	0015
Unika	0153
United Artists	0007
Universal	0153, 0191
Viewstar	0063
Zenith	0000, 0525
Zentek	0400

SETUP CODES FOR CD PLAYERS

Aiwa	0157, 0124
Burmester	0420
California Audio Lab	0029
Carver	0157, 0179, 0437
DKK	0000
Denon	0003, 0873
Emerson	0305
Fisher	0179, 0174
Garrard	0420, 0393
Genexxa	0032, 0305
Harman/Kardon	0173
Hitachi	0032
JVC	0072
Kenwood	0028, 0037, 0190, 0681, 0826
Krell	0157
LXI	0305
Linn	0157
MCS	0029
MTC	0420
Magnavox	0157, 0305
Marantz	0029, 0157, 0180
Mission	0157
NSM	0157
Nikko	0174
Onkyo	0101, 0868
Optimus	0000, 0032, 0179, 0305, 0037, 0420, 0145, 0468,0437
Panasonic	0029, 0303
Parasound	0420
Philips	0157, 0626
Pioneer	0032, 0305, 0468, 0244
Proton	0157
QED	0157
Quasar	0029
RCA	0179, 0305, 0053, 0764
Realistic	0179, 0420, 0180
Rotel	0157, 0420
SAE	0157
Sansui	0157, 0305
Sanyo	0179
Scott	0305
Sears	0305
Sharp	0037, 0180, 0861
Sherwood	0180
Sony	0000, 0185, 0490
Soundesign	0145
Tascam	0420
Teac	0420, 0393, 0174, 0180
Technics	0029, 0303
Victor	0072
Wards	0157, 0053
Yamaha	0036, 0187
Yorx	0461

SETUP CODES FOR HOME AUTOMATION

GE	0240
Lutron	0597
One For All	0167
Radio Shack	0240
Security System	0167
Universal X10	0167
X10	0167

SETUP CODES FOR CASSETTE PLAYERS

Aiwa	0029, 0197
Carver	0029
Denon	0076
Harman/Kardon	0182
JVC	0244, 0273
Kenwood	0070
Magnavox	0029
Marantz	0029
Onkyo	0135, 0282
Optimus	0027, 0220
Panasonic	0229
Philips	0029
Pioneer	0027, 0220, 0099
Sansui	0029
Sony	0243, 0170, 0291
Technics	0229
Victor	0273
Wards	0027
Yamaha	0097, 0094

SETUP CODES FOR LASER DISC PLAYERS

Denon	0059
Mitsubishi	0059
NAD	0059
Pioneer	0059
Sony	0193, 0201

SETUP CODES FOR MISC AUDIO

Aiwa	0010, 0159, 0404
Fisher	0052

Harman/Kardon	0477
JBL	0477
JVC	0073
Jerrold	0459, 0520
RCA	0056
Scientific Atlanta	0460
Sony	0010, 0159
Starcom	0459

SETUP CODES FOR VIDEO ACCESSORIES

Archer	0160
GC Electronics	0160
Jebsee	0160
Rabbit	0081
Radio Shack	0160
TeleCaption	0171

SETUP CODES FOR SATELLITE

AlphaStar	0772
Chaparral	0216
Echostar	0775
Expressvu	0775
General Instrument	0627, 0361, 0869
HTS	0775
Hitachi	0819
Hughes Network Systems	0749
JVC	0775
Jerrold	0627, 0361
Magnavox	0724, 0722
Memorex	0724
Next Level	0869
Panasonic	0701
Philips	0724, 0722
Primestar	0627, 0361
RCA	0566, 0143, 0855
Realistic	0052
Sony	0639
Star Choice	0869
Toshiba	0790
Uniden	0724, 0722, 0052
Zenith	0856

SETUP CODES FOR TELEVISIONS

AOC	0030, 0019
Admiral	0093
Aiko	0092
Akai	0030
Alaron	0179
Ambassado	0177
Ampro	0751
Anam	0180
Audiovox	0451, 0180, 0092, 0623
Baysonic	0180
Belcor	0019
Bell & Howell	0154, 0016
Bradford	0180
Brockwood	0019
Broksonic	0236, 0463
CXC	0180
Candle	0030, 0056
Carnivale	0030
Carver	0054
Celebrity	0000
Cineral	0451, 0092
Citizen	0060, 0030, 0056, 0039, 0092
Concerto	0056
Contec	0180
Craig	0180
Crosley	0054
Crown	0180, 0039
Curtis Mathes	0047, 0054, 0154, 0051, 0451, 0093, 0060, 0030, 0145, 0056, 0016, 0039, 0166, 0466, 1147, 1347
Daewoo	0451, 0019, 0039, 0092, 0623, 0624
Daytron	0019
Denon	0145
Dumont	0017, 0019
Dwin	0720, 0774
Electroband	0000
Emerson	0154, 0236, 0463, 0180, 0282, 0178, 0019, 0179, 0039, 0177, 0623, 0624
Envision	0030
Fisher	0154
Fujitsu	0179
Funai	0180, 0179, 0171
Futuretech	0180
GE	0047, 0051, 0451, 0093, 0282, 0178, 0021, 0135, 1147, 1347
Gibralter	0017, 0030, 0019
GoldStar	0030, 0178, 0019, 0056
Gradiente	0053, 0056
Grunpy	0180, 0179
Hallmark	0178
Harley Davidson	0179
Harman/Kardon	0054

Harvard	0180
Hitachi	0145, 0056, 0151
Infinity	0054
Inteq	0017
JBL	0054
JCB	0000
JVC	0053
KEC	0180
KTV	0180, 0030, 0039
Kenwood	0030, 0019
LG	0056
LXI	0047, 0054, 0154, 0156, 0178
Logik	0016
Luxman	0056
MGA	0150, 0030, 0178, 0019
MTC	0060, 0030, 0019, 0056
Magnavox	0054, 0030, 0179
Majestic	0016
Marantz	0054, 0030
Matsushita	0250
Megatron	0178, 0145
Memorex	0154, 0250, 0150, 0178, 0056, 0016
Midland	0047, 0017, 0051, 0039, 0135
Minutz	0021
Mitsubishi	0093, 0150, 0178, 0019
Motorola	0093
Multitech	0180
NAD	0156, 0178, 0166
NEC	0030, 0019, 0056
NTC	0092
Nikko	0030, 0178, 0092
Onwa	0180
Optimus	0154, 0250, 0166
Optonica	0093, 0165
Orion	0236, 0463, 0179
Panasonic	0051, 0250
Penney	0047, 0156, 0051, 0060, 0030, 0178, 0021, 0019, 0056, 0039, 0135, 1347
Philco	0054, 0463, 0030, 0145, 0019
Philips	0054
Pilot	0030, 0019, 0039
Pioneer	0166
Portland	0019, 0039, 0092
Prism	0051
Proscan	0047
Proton	0178, 0466
Pulsar	0017, 0019
Quasar	0051, 0250, 0165
RCA	0047, 0051, 0093, 0019, 0090, 0135, 1047, 1147,1247, 1347
Radio Shack	0047, 0154, 0165, 0180, 0030, 0178, 0019, 0056, 0039
Realistic	0154, 0165, 0180, 0030, 0178, 0019, 0056, 0039
Runco	0017, 0030, 0603
SSS	0180, 0019
Sampo	0030, 0039
Samsung	0060, 0030, 0178, 0019, 0056
Samsux	0039
Sansei	0451
Sansui	0463
Sanyo	0154
Scimitsu	0019
Scotch	0178
Scott	0236, 0180, 0178, 0019, 0179
Sears	0047, 0054, 0154, 0156, 0178, 0179, 0056, 0171
Semivox	0180
Semp	0156
Sharp	0093, 0165, 0039
Shogun	0019
Signature	0016
Sony	0000
Soundesign	0180, 0178, 0179
Squareview	0171
Starlite	0180
Supreme	0000
Sylvania	0054, 0030
Symphonic	0171
TMK	0178, 0056, 0177
Tandy	0093
Technics	0051, 0250
Technol Ace	0179
Techwood	0051, 0056
Teknika	0054, 0180, 0150, 0060, 0019, 0179, 0056, 0016, 0039, 0092
Telefunken	0056
Toshiba	0154, 0156, 0060
Totevision	0039
Vector Research	0030
Victor	0053
Vidikron	0054
Vidtech	0178, 0019
Wards	0054, 0165, 0030, 0178, 0021, 0019, 0179, 0056, 0016

White Westinghouse	0623, 0624
Yamaha	0030, 0019
Zenith	0017, 0016, 0092

SETUP CODES FOR VCRS

Admiral	0048
Adventura	0000
Aiko	0278
Aiwa	0037, 0000
Akai	0041
American High	0035
Asha	0240
Audiovox	0037
Beaumark	0240
Bell & Howell	0104
Broksonic	0184, 0121, 0209, 0002
CCE	0072, 0278
Calix	0037
Canon	0035
Carver	0081
Cineral	0278
Citizen	0037, 0278
Colt	0072
Craig	0037, 0047, 0240, 0072, 0271
Curtis Mathes	0060, 0035, 0041, 0162
Cybernex	0240
Daewoo	0045, 0278
Denon	0042
Dynatech	0000
Electrohome	0037
Electrophonic	0037
Emerex	0032
Emerson	0037, 0184, 0000, 0121, 0043, 0209, 0002, 0278
Fisher	0047, 0104
Fuji	0035, 0033
Funai	0000
GE	0060, 0035, 0048, 0240
Garrard	0000
Go Video	0526
GoldStar	0037, 0038
Gradiente	0000
HI-Q	0047
Harley Davidson	0000
Harman/Kardon	0081, 0038
Harwood	0072
Headquarter	0046
Hitachi	0000, 0042, 0041
JVC	0067, 0041
Jensen	0041
KEC	0037, 0278
KLH	0072
Kenwood	0067, 0041, 0038
Kodak	0035, 0037
LXI	0037
Lloyd's	0000
Logik	0072
MEI	0035
MGA	0240, 0043
MGN Technology	0240
MTC	0240, 0000
Magnasonic	0278
Magnavox	0035, 0039, 0081, 0000, 0149
Magnin	0240
Marantz	0035, 0081
Marta	0037
Matsushita	0035, 0162, 0454
Memorex	0035, 0037, 0048, 0039, 0047, 0240, 0000, 0104,0162, 0046
Minolta	0042
Mitsubishi	0048, 0067, 0043
Motorola	0035, 0048
Multitech	0000, 0072
NEC	0104, 0067, 0041, 0038
Nikko	0037
Noblex	0240
Olympus	0035
Optimus	0037, 0048, 0104, 0162, 0454, 1062, 1162, 1262
Orion	0184, 0002
Panasonic	0035, 0162, 0225, 0454, 1162
Penney	0035, 0037, 0240, 0042, 0038
Pentax	0042
Philco	0035, 0209
Philips	0035, 0081
Pilot	0037
Pioneer	0067
Profitronic	0240
Proscan	0060
Protec	0072
Pulsar	0039
Quarter	0046
Quartz	0046
Quasar	0035, 0162, 0454, 1162
RCA	0060, 0035, 0048, 0240, 0042, 0149
Radio Shack	0000
Radix	0037
Randex	0037

Realistic	0035, 0037, 0048, 0047, 0000, 0104, 0046
Runco	0039
STS	0042
Samsung	0240, 0045
Sanky	0048, 0039
Sansui	0000, 0067, 0041, 0271
Sanyo	0047, 0240, 0104, 0046
Scott	0184, 0045, 0121, 0043
Sears	0035, 0037, 0047, 0000, 0042, 0104, 0046
Semp	0045
Sharp	0048
Shintom	0072
Shogun	0240
Singe	0072
Sony	0035, 0032, 0000, 0033
Sylvania	0035, 0081, 0000, 0043
Symphonic	0000
TMK	0240
Tatung	0041
Teac	0000, 0041
Technics	0035, 0162
Teknika	0035, 0037, 0000
Thomas	0000
Toshiba	0045, 0043
Totevision	0037, 0240
Unitech	0240
Vector	0045
Vector Research	0038
Video Concepts	0045
Videosonic	0240
Wards	0060, 0035, 0048, 0047, 0081, 0240, 0000, 0042, 0072, 0149
White Westinghouse	0278
XR-1000	0035, 0000, 0072
Yamaha	0038
Zenith	0039, 0000, 0033

SETUP CODES FOR DVD PLAYERS

Harman/Kardon	0582
JVC	0558
Kenwood	0534
Magnavox	0503
Mitsubishi	0521
Onkyo	0503
Optimus	0525
Panasonic	0490
Philips	0503, 0539
Pioneer	0525, 0571
Proscan	0522
RCA	0522
Samsung	0573
Sony	0533
Technics	0490
Toshiba	0503
Yamaha	0490, 0545
Zenith	0503, 0591

Outlaw Model 1050 Specifications:

Stereo Mode, Continuous Average Power

(FTC)-70 Watts per channel 20Hz~20kHz; @<0.05% THD, both channels driven into 8 ohms

Six-Channel Surround Mode, Output Power

65 Watts per channel, three channels driven @<0.05% THD, 20Hz~20kHz into 8 ohms

Input Sensitivity/Impedance

Linear (High Level) 350mV/45 kohms

Signal-to-Noise Ratio

(1HF-A vs 0dBFs)	97dB

Surround System Adjacent Channel Separation

Analog Decoding (Pro Logic, etc.)	44dB
Dolby Digital (AC-3)	55dB
DTS	55dB

Frequency Response

@1W (+0dB, -3dB)	8Hz~75kHz

FM Tuner Section

Frequency Range	87.5~108MHz
Usable Sensitivity	1HF 5pV/25dBf
Signal-to-Noise Ratio	Mono/Stereo 65/55dB
Distortion	Mono/Stereo 1.5/1.0%
Stereo Separation	40dB @ 1kHz
Selectivity	±400kHz, 65dB
Image Rejection	60dB
If Rejection	70dB

AM Tuner Section

Frequency Range	520~1710kHz
Signal-to-Noise Ratio	45dB
Usable Sensitivity	Loop 500uV
Distortion	1kHz, 50% Mod 1.0%
Selectivity	±10kHz, 25dB

Video Section

Video Format	NTSC
Input Level/Impedance	1Vp-p/75ohms
Output Level/Impedance	1Vp-p/75ohms
Video Frequency Response	10Hz~8MHz (-3db)

Power Requirement

AC 120V/60Hz

Power Consumption

3.7W standby, 57W idle 425Wmax. (3 channels driven)

Dimensions (Max)

Width	17.2 inches (437 mm)
Height	6.1 inches (156 mm)
Depth	14.3 inches (464 mm)
Weight	36.3 lbs. (16.5 kg)

Note: All specifications subject to change without notice

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Outlaw Model 1050 Limited Warranty

warranty protects the owner of the Outlaw 1050 Receiver (the PRODUCT) for TWO
s from the date of purchase.

warranty covers all defects in material and workmanship with the following specific
ptions. These are:

mage caused by improper installation or adjustment
mage caused by accident, unreasonable use or neglect
mage from failure to follow instructions contained in this Owner's Manual
mage from the performance of repairs by someone not authorized by Outlaw Audio
unit on which the serial number has been effaced, modified, or removed
mage occurring during shipment
its which have been altered or modified in design, appearance or construction

warranty covers only the actual defects within the PRODUCT itself. IT DOES NOT
r costs of installation in (or removal from) a fixed installation, or normal set-up, claims
d on any misrepresentation by the seller, or performance variations resulting from
llation related circumstances such as signal quality, AC power or incompatibilities wit
kers and/or other system components.

ng the warranty period, Outlaw Audio will, at its option, either repair the defect, or
ce the defective product, or the defective parts, or components thereof at no charge
wner for parts and labor covered by this warranty. If necessary repairs are not cove
is warranty, or if a unit is examined which is not in need of repair, you will be charge
e repairs and/or the examination. If non-warrantied repairs are needed, we will notify
of the estimated cost and ask for your authorization to perform said repairs.

must pay shipping charges incurred in getting your Product to the factory. We will pa
eturn shipping charges if the repairs are covered by the warranty. Please save the
nal shipping cartons as the unit MUST be returned in the original carton and packing.
lacement cartons are available at a modest charge.)

ur product needs service, please notify us at:

Outlaw Audio Inc.
18 Denbow Road
Durham, NH 03824
Tel. (603) 868-5557
Fax (603) 868-6634
ATTN: Service Department

will need to present the original bill of sale to establish the date of purchase. In the
t that the proof of purchase cannot be established with the original receipt, the warra
od shall be determined by the earliest date of manufacture shown on the unit, provide
the serial number label has not been altered in any manner, or by our records relatin
serial number.

e event that you wish to return your Outlaw Model 1050 receiver back to us, for any
on, please call to arrange for a Return Authorization Number. This will insure that you
lem is discussed with a service technician who will determine if there is a quick soluti
ur problem.

aw Audio shall not be liable for, or in any way responsible for, any incidental or
equential damages of any kind. Some states do not allow limitations on how long an
ed warranty lasts and/or do not allow the exclusion of incidental or consequential
ages, therefore, the limitations and exclusions stated herein may not apply to you. T
anty gives you specific legal rights, and you may also have other rights which vary fr
to state.

RE ARE NO WARRANTIES GIVEN BY OUTLAW AUDIO WHICH EXTEND BEYOND
DESCRIPTION GIVEN HEREIN. ANY IMPLIED WARRANTIES OF FITNESS FOR
POSE SOLD, MERCHANTABILITY, DESCRIPTION, QUALITY OR ANY OTHER
TERS ARE LIMITED TO THE TERMS OF THE EXPRESSED LIMITED WARRANTY
TED HEREIN.

ucts are sold on the basis of specifications applicable at the time of sales. Outlaw Au
have no obligation to modify products once they have been sold.

This warranty is applicable only in the United States.
For applicability in other countries, please call Outlaw Audio, Inc.

1050 Receiv
Installatio
Notes