

Your RadioShack AM/FM Cassette Car Stereo has many practical, easy-to-use features, and you can install it in almost any vehicle. The stereo's CD input jack lets you connect any portable CD player with a DC adapter. The tuner's digital synthesized PLL (phase-locked-loop) circuitry gives you precise tuning and drift-free reception.

Balance, tone, fader and volume controls let you adjust the sound for maximum listening pleasure. The stereo's features include:

- CD Input Jack - lets you easily connect a portable compact disc (CD) player.
- Continuous Auto-Reverse - allows continuous play of both sides of a cassette tape.
  - High Power - provides 32 watts of total power to give you excellent audio response for all types of music.
- Manual/Automatic Memory Programming - lets you manually or automatically store six AM and 12 FM stations in memory so you can quickly tune to those stations with the press of a button.
  - Automatic Travel Programming - lets you store an additional six AM stations and six FM stations separate from the manual/automatic programmed memory groups.
- Radio Monitor - lets you hear the radio while you fast forward or rewind a cassette tape.
- Preamp Outputs - lets you connect an optional equalizer/booster with phono plugs.
- Lighted Display with Clock - lets you easily see the clock, radio and cassette deck function selections.
  - Scan Tuning - scans forward on the selected band, stopping for several seconds on each station.
  - Seek Tuning - searches forward to the next strong station in the selected band.

- Automatic Seek and Scan Sensitivity - adjusts your stereo so the first time it searches a band it stops only on strong local stations, and the next time it searches it stops on weaker distant stations.
- Line-Level Outputs - lets you connect the stereo to external power amplifiers, boosters, or other accessories that have line input jacks.
- Balance Control - lets you balance the sound between your left and right speakers.
- Locking Fast-Forward/Reverse - lets you quickly move the tape to either the beginning or the end without holding the fast forward button.
- Advanced FM Optimizer Circuitry - automatically adjusts the tuner's stereo separation and high-frequency response to give you the best possible sound, regardless of the signal level.
- Push Band Selector - lets you easily select AM or FM stations with the push of a button.
- Adjustable Shaft Spacing - fits almost all shaft type installations.
- Built-In Loudness Circuitry - automatically boosts your stereo's high and low frequencies for better sound at low volume levels.

## Preparation

**CAUTION:** Improper installation can damage your stereo and other components in your vehicle's autosound system.

Before you install your stereo, read all the instruction's in this owner's manual. You should be able to answer all of these questions about your vehicle's electrical and sound systems:

Does my vehicle have a 12-volt negative ground electrical system?

Which terminal in my Vehicle's fuse box supplies power even when the ignition is turned off?

Which terminal in my vehicle's fuse box is for accessories?

How do I connect a wire to the fuse box?

Also, be aware that installation in your vehicle might require cutting or modifying your vehicle.

Place the stereo as close as possible to the selected mounting location. We recommend that you install the stereo by temporarily connecting it to ground and power, optional components, and your speakers. Then test the connections. Next, disconnect the stereo, mount it in your vehicle, and then reconnect it. The instructions in this manual are arranged in this order.

**CAUTION:** Be sure your speaker can handle 32 watts of power (16 watts per channel). Each speaker must have an impedance of at least 4 Ohms. Your local RadioShack store carries a full line of speakers.

## Setting the Shaft Spacing

The size of existing openings in the dash or installation kit determines the best spacing between the stereo's shafts (knobs).

The space between the shafts is preset to 5-13/16 inches (148 mm) at the factory. You can change the spacing to 5-5/8 inches (142 mm), to 5-3/8 inches (136 mm), or to 5-1/8 inches (130 mm).

Follow these steps if you need to change the shaft spacing.

1. Loosen each shaft nut about halfway up the shaft.
2. Move each shaft positioner to the correct pair of holes.
3. Hold each shaft positioner in place as you re-tighten its shaft nut.

#### Preparing the Mounting Area

Before you mount the stereo, make sure you have all the necessary materials. Then confirm that the stereo fits your vehicle's mounting area.

Note: If the mounting area is too large, you might be able to mount the stereo with the supplied gasket or an in-dash installation kit, available at your local RadioShack store. Follow the installation kit's instructions to mount the stereo.

#### Routing Speaker Wires

If you install speakers, avoid routing the speaker wires near moving parts or sharp edges. You can usually route wires along the channel beneath the vehicle's door facings by carefully removing the molding that holds the carpet in place. After you route the speaker wires, replace the molding.

#### Making The Connections

The supplied harness with the 14-pin connector includes all the lead wires you need to connect the stereo to ground, power, optional components, and speakers.

**IMPORTANT:** Do not cut the lead wires. If you cut any wire, you cannot obtain a refund or exchange on this product. However, your local RadioShack store will provide warranty service if you cut a wire and find the product is defective.

You might need additional wire, depending on your individual autosound system, to complete the connections. Your local RadioShack store carries a full line of wire and wire management accessories.

**CAUTIONS:** For added safety and to protect your stereo, disconnect the cable from your vehicle battery's negative (-) terminal before you begin.

You must connect the GROUND (-), +12V TO IGNITION, and +12V TO BATTERY wires first then make all other connections as described in the following sections before you plug the wire harness with

the 14-pin connector into the stereo. If any wire connections are made incorrectly or out of order, damage to the stereo is possible.

Note: The wires in the wire harness have these colors and labels.

FRONT LEFT		FRONT RIGHT	
(White)	+	(Gray)	+
(White/Black)	-	(Gray/Black)	-
REAR LEFT		REAR RIGHT	
(Green)	+	(Violet)	+
(Green/Black)	-	(Violet/Black)	-

#### Wire Harness

Black	GROUND (-)
Red	+12V to IGNITION
Blue/White	AMP REMOTE
Yellow	+12V to BATTERY

You must connect a separate wire to each speaker terminal as described in the following procedure. Do not use a common wire or chassis ground for any speaker connection.

#### Using an Adapter Harness

If you are replacing an existing stereo, or if your vehicle has been factory-wired for autosound components, you might be able to use an adapter harness to connect the power and speakers. RadioShack stores sell adapter harnesses for most vehicles.

Follow the directions that come with the adapter harness to temporarily connect the power and speakers.

#### Connecting Ground, Power, and Optional Components

Follow these steps to connect the wire harness to ground, primary and memory backup power, and optional components.

Note: The (Red +12V to Ignition) and (Yellow +12V to Battery) wires each have an In-Line fuse Holder.

1. Connect the black GROUND (-) wire to a chassis ground, such as a metal screw attached to a metal part of the vehicle's frame. Be sure that the screw is not insulated from the frame by a plastic part.
2. Connect the red +12V to IGNITION wire (with in-line fuse holder) to a point in your vehicle's fuse block that has power only when you turn the vehicle's key to either the accessory (ACC) or START position.

This connection turns on the stereo when you turn on the ignition or turn the key to ACC, and turns off the stereo when you turn off the ignition. This prevents your vehicle's battery from being drained if you leave the stereo on when you turn off the ignition.

3. Connect the yellow +12V to BATTERY wire (with in-line fuse holder) to your vehicle battery's positive (+) terminal or to a fuse that provides a continuous source of 12 volts.

This connection provides power for the stereo's components (such as the clock), and continuous power for the stereo's memory when the ignition is turned off.

4. Connect the blue/white AMP REMOTE TURN ON 500MA MAX wire to any optional equipment designed to run from a switched source that you want the stereo to turn on and off (such as a booster or a power antenna).

This wire does not provide power to the components. It simply turns them on or off. If you do not use this wire, secure it with a wire tie and do not let it touch metal.

Note: The optional equipment must be designed for use with a switched power lead.

#### Connecting Two Pairs of Speakers

If you are using both front and rear speakers, follow these steps to connect the harness to the speakers.

##### Speaker Wires:

FRONT LEFT		FRONT RIGHT	
(White)	+	(Gray)	+
(White/Black)	-	(Gray/Black)	-
REAR LEFT		REAR RIGHT	

(Green)	+	(Violet)	+
(Green/Black)	-	(Violet/Black)	-

1. Use a small screwdriver to move (2 ch) (4 ch) on the bottom of the stereo to (4 ch) (four channels).
2. Connect the gray FRONT RIGHT (+) wire to the front right speaker's positive terminal. The terminal is usually marked with a plus (+) sign or red mark.
3. Connect the gray/black FRONT RIGHT (-) wire to the front right speaker's negative terminal. This terminal might be marked with a minus (-) sign or unmarked.
4. Connect the white FRONT LEFT (+) wire to the front left speaker's positive terminal.
5. Connect the white/black FRONT LEFT (-) wire to the front left speaker's negative terminal.
6. Connect the violet REAR RIGHT (+) wire to the right rear speaker's positive terminal.
7. Connect the violet/black REAR RIGHT (-) wire to the rear right speaker's negative terminal.
8. Connect the green REAR LEFT (+) wire to the rear left speaker's positive terminal.
9. Connect the green/black REAR LEFT (-) wire to the rear left speaker's negative terminal.

#### Connecting One Pair of Speakers

If you are using only one pair of speakers, follow these steps to connect the harness to the speakers.

1. Use a small screwdriver to move (2 ch) (4 ch) on the bottom of the stereo to (2 ch) (two channels).
2. Connect the gray FRONT RIGHT (+) wire to the right speaker's positive terminal. This terminal is usually marked with a plus (+) sign or red mark.
3. Connect the violet/black REAR RIGHT (-) wire to the right speaker's negative terminal. This terminal might be marked with a minus (-) sign

or it might not be marked at all.

4. Connect the white FRONT LEFT (+) wire to the left speaker's positive terminal.
5. Connect the green/black REAR LEFT (-) wire to the left speaker's negative terminal.

#### Connecting the Antenna

Connect the vehicle's antenna cable to the stereo's large black antenna connector.

#### Testing the Connections

Make sure you have securely made all other connections, then plug the harness's connector into the stereo's 14-pin wiring socket.

Then reconnect the cable to the vehicle battery's negative terminal to test the connections.

Turn on your vehicle's ignition. The display should light and the currently set time (or 12:00) should appear on the display when you turn the left inner shaft clockwise until you hear it click to turn on the stereo.

**CAUTION:** If the stereo does not work, immediately disconnect the cable from your vehicle battery's negative (-) terminal. Then recheck your connections.

After you verify that the display lights and the clock appears, follow the instructions in "Mounting the Stereo" below.

#### Mounting The Stereo

Be sure you test the stereo first and verify that it works properly. (See "Making the Connections" above.) Then follow these steps to mount the stereo.

1. Disconnect the cable from the vehicle battery's negative (-) terminal.
2. Disconnect the wire harness and the antenna.

**Note:** If you are using an in-dash installation kit, follow the procedure outlined in the kit, and proceed to Step 4 (skip Step 3).



3. Position the stereo in the dashboard as follows:
  - a. Place one supplied nut and washer on each shaft and tighten the nuts about halfway up the shafts.
  - b. From behind the mounting surface, insert the shafts through the mounting surface.
  - c. Adjust the nuts on the shafts until the stereo's front panel lines up properly with the dashboard. Insert the supplied gasket if additional front panel support is needed.
  - d. Place another supplied nut and washer on each shaft and tighten the nuts to secure the stereo against the dashboard.
4. Place the trim plate and shaft-spacing adapters over the shafts. Select the shaft-spacing adapters that fit over the shafts and into the cutouts in the trim plate.
5. Place the remaining washers and nuts on the shafts and tighten the nuts against the shaft-spacing adapters.

Note: To further secure the stereo, if your vehicle's dashboard space permits access to the back of your stereo, attach one end of the metal strap to the bolt on the back of the stereo. Then attach the other end of the strap to a solid metal part of the vehicle using an existing bolt or the supplied self-taping screw. This strap also ensures that the stereo is properly grounded.

6. Place the inner and outer knobs on the shafts.
7. Reconnect the wire harness and antenna.
8. Reconnect your vehicle's negative (-) battery cable.

#### Using The Line Level Components

This stereo has preamp outputs (phono connectors) for low-noise connection to an optional equalizer/booster, power amplifier, or other device that has line-level inputs.

To ensure a low-noise connection, connect a ground wire between the stereo and any additional component.

Note: When connecting an equalizer/booster not sold by RadioShack, refer

to its owner's manual.

#### Connecting a Compact Disc Player

You can connect a portable CD player (or other audio component with a line-level output) to the stereo.

Use a stereo mini-jack cable with 1/8-inch plugs. (Your local RadioShack store offers a wide variety of mini-jack cables.)

Connect the cable to CD IN and to the output jack of the CD player or other component.

Note: When you plug a cable into CD IN, you will not be able to listen to the radio or a cassette tape. Be sure you disconnect the CD player when you are not using it.

### Using The Controls

When you listen to your stereo, adjust the following controls to suit your listening preferences.

VOLUME and ON/OFF knob	BALANCE knob (PULL out)
TONE Knob	TUNING knob
FADER knob	

ON VOL - Turn the left inner knob clockwise until you hear it click to turn on the stereo. Continue to turn the knob clockwise to increase the volume. Turn the knob counterclockwise to reduce the sound or until you hear it click to turn off the stereo.

WARNING: To protect your hearing, do not listen at high volume levels. Slowly increase the volume to a comfortable listening level.

0 TONE - Turn the left outer knob to adjust for the best treble and bass balance. Turning it clockwise reduces the base while turning it counter clockwise reduces the treble.

FADER 0 - Turn the right outer knob for the desired balance between the front and rear speakers.

Note: If you have only one set of speakers and connected them to the front speaker wires, turn FADER fully clockwise.

BAL (PULL) - Pull the left inner knob until it locks. Turn it clockwise or counterclockwise to adjust balance between the left and right speakers. Push the knob in to retain the setting.

TUNING - Turn the right inner knob in either direction to select the desired AM or FM station.

### Setting The Clock

Note: The clock appears on the display even when the stereo is turned off. To set the clock, you must turn on the stereo.

1. Turn on the stereo and the radio station frequency appears. After 5 seconds, the clock reappears on the display.

Note: If the stereo is already on and you have the display set to the radio frequency, press F/C (frequency/clock). The clock display appears.

2. While holding down F/C (frequency/clock), turn TUNING counterclockwise until the display advances to the correct hour.

Note: You can quickly turn and release TUNING to advance the displayed hour or minute one digit at a time.

3. While holding down F/C, turn TUNING clockwise until the display advances to the correct minute.
4. When the display shows the correct time, release F/C.

## Radio Operation

### Playing The Radio

Follow these steps to listen to the radio.

1. Turn ON VOL clockwise until you hear it click to turn on the stereo.
2. Press AM/FM to select the desired band. AM1 or AM2 appears on the display when an AM band is selected. FM1, FM2, or FM3 appears on the display when an FM band is selected.

Notes: Each time you press AM/FM, the radio automatically tunes to the last station selected in that band.

ST appears on the display when an FM stereo signal is received.

3. Tune to the desired station in one of the following ways:

Manual Tuning: Turn TUNING in either direction to tune up or down the selected band.

Seek Tuning: Press SEEK to tune to the next higher station with a strong signal.

Scan Tuning: Press SCAN to scan the higher frequency stations. The radio pauses for 5 seconds at each station. The station's frequency flashes on the display. When the radio pauses at a station you want to listen to, press SCAN again to stop scanning.

Note: If the stereo does not find a strong station when seeking or scanning, the stereo searches the band again and stops on weaker stations.

4. Adjust ON VOL, TONE, FADER and BAL as desired.

Note: To temporarily display the frequency of the current station, press and release F/C. The display shows the frequency for 5 seconds, then returns to the time display.

#### Memory Tuning

You can store up to six AM and 12 FM stations in memory. Each memory group (AM1, FM1, and FM2) holds up to six stations.

You can let the stereo search for any six stations in a band and automatically enter these into a memory group, or you can manually enter stations into a memory group.

#### Automatically Storing Stations

Follow these steps to automatically enter stations into a memory group.

1. Repeatedly press AM/FM until the stereo displays the band and memory group where you want to store a group of stations. For example, to store the first group of stations into AM1, repeatedly press AM/FM until AM1 appears.
2. Hold down AMS (automatic memory scan) for about 3 seconds. The stereo automatically stores the first six strong stations on the selected band.

After the stereo has stored all six stations into memory, it tunes to the first stored station in the memory group and begins to play.

Note: You can store a station manually if the stereo does not automatically store it due to a weak signal or interference. See "Manually Storing Stations," below.

#### Manually Storing Stations

Follow these steps to manually enter stations into memory.

1. Repeatedly press AM/FM to select the desired band and memory group (AM1, FM1 or FM2).

2. Use any tuning method to tune to the station you want to store.
3. Hold down the desired memory location button (1-6) until the memory location number and the frequency appear on the display. The volume mutes briefly and the station is stored.

#### Storing Stations in Automatic Travel Programming Memory

The stereo can store the first six strong AM and the first six strong FM stations it finds into its automatic travel programming memory (bands AM2 and FM3). This memory is separate from the stereo's memory groups, so it does not replace the stations you manually stored.

1. Repeatedly press AM/FM to select the desired band (AM2 or FM3). The stereo displays ATP.
2. Hold down AMS for about 2 seconds. The stereo displays L0, scans the selected band, and automatically stores the first six strong stations it finds in automatic travel programming memory.

After the stereo stores all six stations in the selected band, it tunes to the first station stored in channel 1.

Notes: If the stereo does not find a strong station with automatic travel programming, the stereo searches the band again and stops on weaker stations.

If the stereo could not find any station, the last station tuned to is recalled.

#### Selecting a Stored Station

To select a stored station, press AM/FM to select the desired memory group then press the desired memory location button.

Note: Do not hold down the memory location button. This erases the previously stored station and stores the currently tuned station in its place.

#### Scanning Stored Stations

The radio can scan all stored stations in the FM or AM bands, pausing for 5 seconds at each station.

To start scanning stored stations, press AM/FM to select the band, then

press AMS. The radio begins scanning the stored stations - AM1 and AM2, or FM1, FM2 and FM3.

Note: Do not hold down AMS. This causes the radio to automatically seek and store six stations into the current memory group.

To stop the scanning when the stereo pauses at a station you want to listen to, either press AMS or the station's memory location button.

## Cassette Player Operation

### Playing A Cassette

CAUTION: Avoid using C-120 cassette tapes. They are very thin and can easily become tangled in the tape-handling parts.

Follow these steps to play a cassette tape.

1. Take up any slack by turning the cassette's hub with your finger or a pencil. (Avoid touching the tape.)
2. Turn ON VOL clockwise until it clicks to turn on the radio.
3. Put the tape into the cassette compartment with its open edge to the right and the side you want to hear facing up. The tape begins to play and the direction indicator appears on the display.
4. Adjust ON VOL, TONE, FADER and BAL as desired.
5. Press IN /\ all the way to stop the tape and eject it.

CAUTION: We recommend you press /\ as soon as you finish playing a tape or before you leave your vehicle, to release it from the tape-handling parts. This reduces the possibility of a tape being inadvertently tangled or damaged.

Notes: When the tape reaches either end while playing or fast-forwarding, the cassette player automatically changes the tape's direction and plays the other side of the tape. Play continues until you press /\

During play, you can switch to the other side of the cassette by momentarily pressing << and >> at the same time until the direction indicator on the display changes direction.

If you play a cassette tape several times, the tape can become tight and cause distortion. To restore the correct tension, fast

forward through the entire cassette in both directions.

#### Fast-Forward and Rewind

To rewind or quickly fast-forward the current side, firmly press << or >> respectively until the button locks and the tape quickly winds. Play resumes when the end of the tape is reached.

To stop fast winding before the end of the tape, gently press and release the opposite button. Play continues in the same direction.

Note: Fast-forward always quickly moves the tape in the same direction the tape is currently playing, and rewind always quickly moves the tape in the opposite direction the tape is currently playing.

#### Listening to the Radio During Fast-Forward or Rewind

During fast-forward and rewind you can listen to the radio.

The radio is preset to play while you fast forward or rewind a tape. However, you can turn off the radio monitor function by pressing F/C, and turn it back on by pressing F/C again.



AM/FM Cassette Car Stereo w/22 Watts x 2 Max Power  
(120-2130A)

Care and Maintenance

Faxback Doc. # 60665

Your RadioShack AM/FM Cassette Car Stereo is an example of superior design and craftsmanship. The following suggestions will help you care for your car stereo so you can enjoy it for years.

Keep the stereo dry. If it gets wet, wipe it dry immediately. Liquids might contain minerals that can corrode the electronic circuits.

Use and store the stereo only in normal temperature environments. Temperature extremes can shorten the life of electronic devices, and distort or melt plastic parts.

Keep the stereo away from dust and dirt, which can cause premature wear of parts.

Handle the stereo gently and carefully. Dropping it can damage circuit boards and cases and can cause the stereo to work improperly.

Wipe the stereo with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the stereo.

Modifying or tampering with the stereo's internal components can cause a malfunction and might invalidate its warranty and void your FCC authorization to operate it. If your stereo is not performing as it should, take it to your local RadioShack store for assistance.

#### The FCC Wants You To Know

Your stereo might cause TV or radio interference even when it is operating properly. To determine whether your stereo is causing the interference, turn off your stereo. If the interference goes away, your stereo is causing it. Try to eliminate the interference by:

Moving your stereo away from the receiver.

Contacting your local RadioShack store for help.

If you cannot eliminate the interference, the FCC requires that you stop using your stereo.

#### Cleaning The Tape-Handling Parts

Clean the tape head after about every 20 hours of playing time. Insert a special head-cleaning cassette, and follow the cassette's direction to clean the tape head. Your local RadioShack store offers a variety of cassette player head cleaners.

#### Restoring Tape Tension And Sound Quality

After you play a cassette tape a few times, the tape might become tightly wound on the reels. This can cause playback sound quality to deteriorate.

To restore the sound quality, fast-forward the tape from the beginning to the end of one side, then turn the tape over and completely fast-forward through the other side. Then loosen the tape reels by gently tapping each side of the cassette's outer shell on a flat surface.

**CAUTION:** Be careful not to damage the cassette when tapping it. Do not touch the exposed tape or allow any sharp objects near the cassette.

#### Replacing A Fuse

If the stereo does not operate properly, you might need to replace the red power wire's fuse with the supplied spare fuse.

If the clock resets or stored stations are lost when the ignition is off, you might need to replace the yellow continuous power wire's fuse with the supplied spare fuse.

**CAUTION:** Do not use a fuse with ratings other than those specified here. Doing so might damage your stereo.

**WARNING:** Before you replace a fuse, disconnect the cable from the vehicle battery's negative (-) terminal.

1. Hold the fuse holder by both ends, push the ends together, twist one end counterclockwise, then pull them apart.
2. If the fuse is blown, replace it. Use only standard 1-1/4 x 1/4-Inch fast-acting fuses with the proper rating. The yellow + 12V TO BATTERY wire's fuse must be 6 amps (such as Cat. No. 270-1012), and the red +12V TO IGNITION wire's fuse must be 0.5 amps (such as Cat. No. 270-1003).

**CAUTION:** The supplied fuses have the proper ratings. Make sure you replace a fuse only with another fuse of the same ratings.

3. Push the fuse holder ends together and twist one end clockwise.
4. Reconnect the cable to the vehicle battery's negative (-) terminal.



Specifications are typical; individual units might vary. Specifications are subject to change and improvement without notice.

(BR EB 7/28/00)  
LN-03/04

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