

KENWOOD EXCELON
PRODUCT CATALOG 1998



JOURNEY TO THE CENTER OF

What makes one car audio system sound better than another? You already know. It's not just one thing. It's everything. How well each component handles the signal. How well each circuit inside each component handles the signal. How well the whole system is tuned. Kenwood eXcelon is designed to push things to the limits. From head units that produce up to 8 volts instead of 2, to amps that are 60% efficient instead of 40%, to speakers with pearl mica that's stronger than the rest—even to our requirement that our dealers employ an installer certified by the Mobile Electronics Certification Program (MECP). In car audio at this level, everything counts. Once you've read about the details, you'll know why.



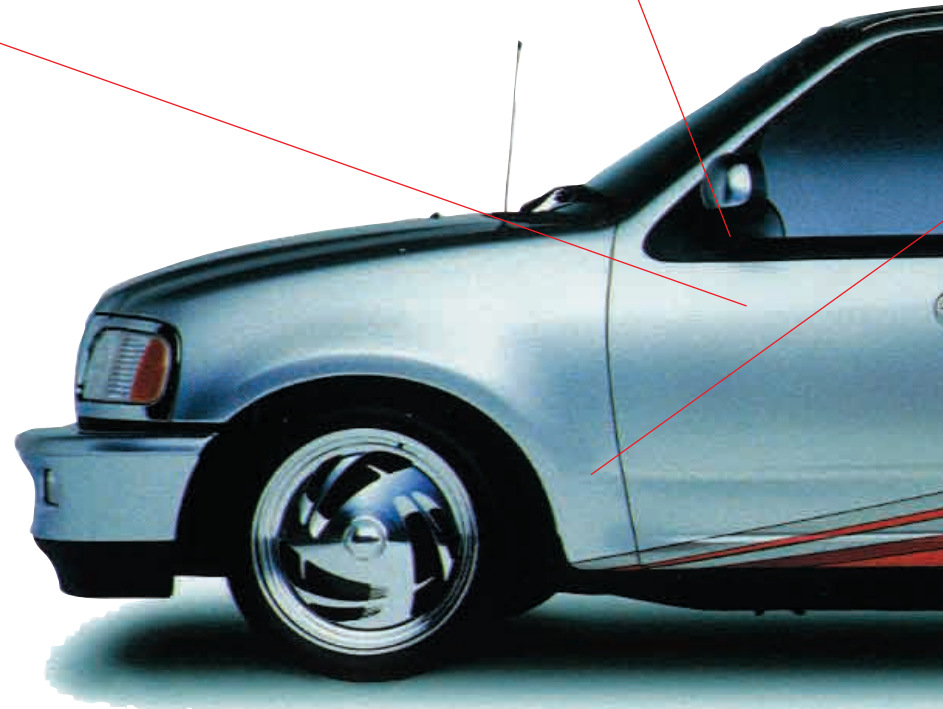
MOBILE VIDEO — PAGE 4

Find out about the latest in car entertainment—TV in your car. Kenwood's Mobile Video unit features high resolution, three viewing modes, audio and video inputs for movies or video games, and a unique touch-screen that lets you control all its features.



SOURCE UNITS — PAGE 4

Learn why 4-volt output is better than the usual 2-volt, why CDs have digital distortion recorded into them (and how Kenwood's DRIVE takes it out), and how you can use Kenwood's exclusive System E's feature to make your system sound louder than the watts you've got.



A KENWOOD EXCELON SYSTEM

SPEAKERS — PAGE 12

See why all pearl mica isn't created equal, why balanced dome tweeters and flat-edge diaphragms keep sound true, and why you want your tweeters made of PPTA film. And learn how Kenwood invented a completely new speaker design (DualMags) that puts out more sound per pound than any speaker around.



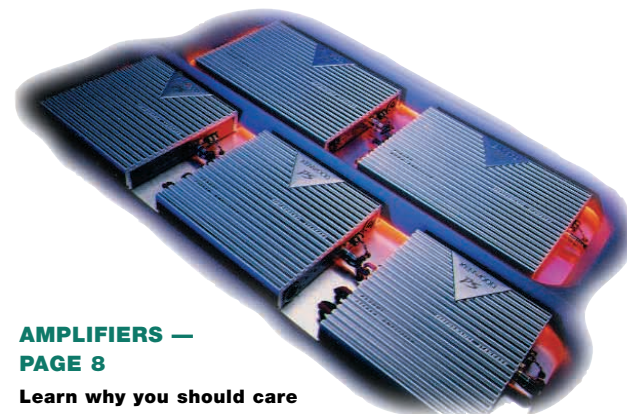
WOOFERS — PAGE 15

Handling up to 1,000 watts, built with diecast aluminum frames and non-pressed pulp cones, Kenwood eXcelon woofers can reproduce lows down to 18 Hz. Featured in the Expedition installation here are small-enclosure pearl mica-injected polypropylene woofers from the standard Kenwood car audio line.



AMPLIFIERS — PAGE 8

Learn why you should care about things like fast-recovery diodes, LAPTs, K-STAT, dual power supply, Sigma Servo, and audio-use caps. (Hint: they're some of what separates great amps from pretenders.) And learn how you can use infrasonic and band-reject filters to tune your system to your car. Finally, check out all the protection built into Kenwood eXcelon amps, which keeps them safe.



Inside the Expedition

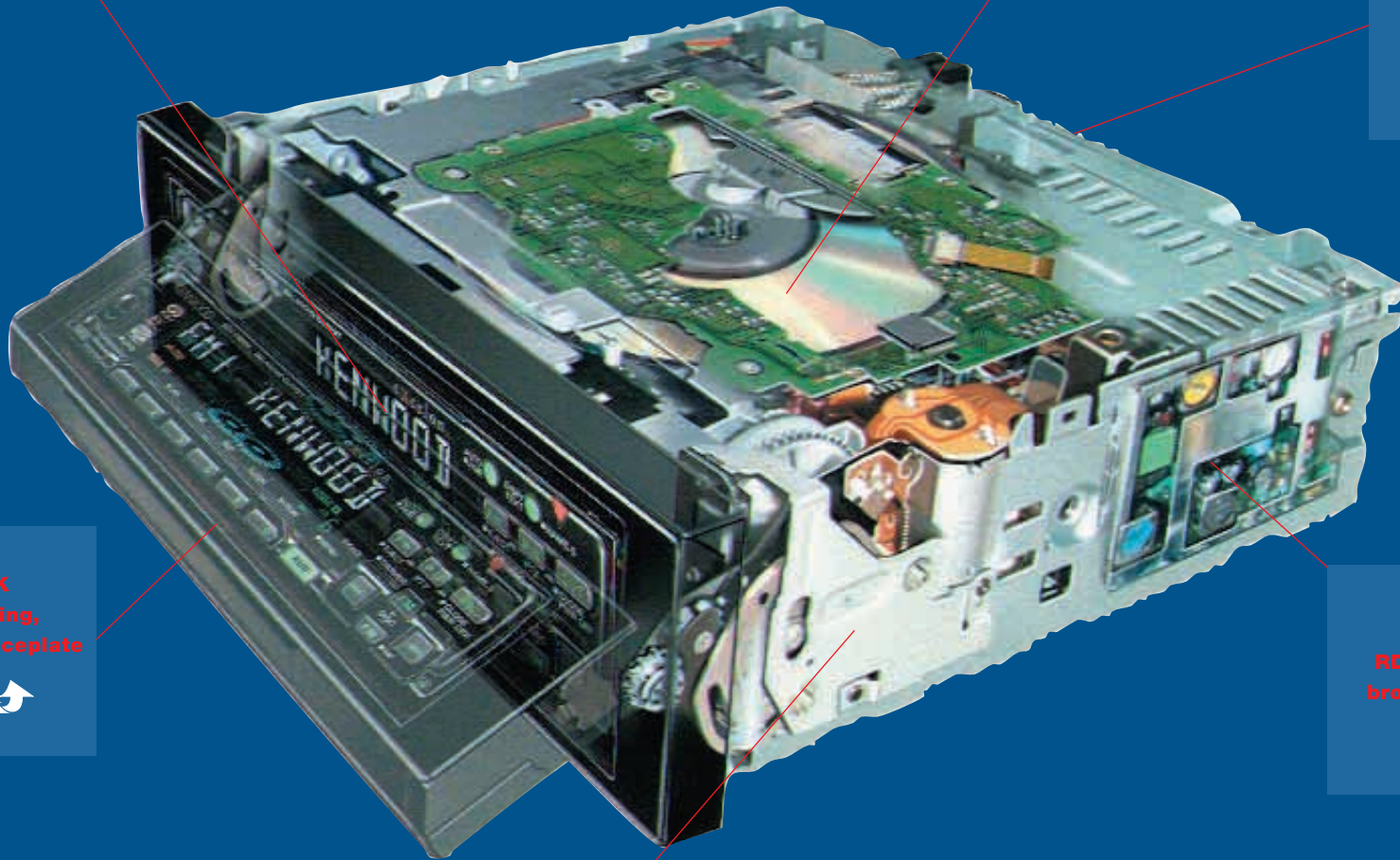
The Kenwood 1998 Ford Expedition is an example of how to put a truly eXcelon system together. Music starts with a KDC-PS909 MASK head unit controlling a KDC-CPS81 10-disc CD changer. A KEC-600 6-way electronic crossover sends highs, mids, and lows through five amps (two KAC-PS200Ts, one KAC-PS300T, and two KAC-PS400Ms) and out to two KFC-HQR52 midrange/tweeter component sets, two KFC-W1602 6" mid-woofers, and four 12" KFC-WS302 woofers. Total power: 1,700 watts at 14.4 volts. The Expedition also features three Kenwood LZ-700W A/V Monitors. On the next few pages, we'll go into details about each component, and how the whole system, works together.

The custom installation of the system was done by Innovative Audio of Bellevue, Washington, (425) 885-2814, and overseen by Kenwood's car audio guru, Steve Berry. Custom work to the Expedition includes a Full Effects suspension kit, Bassani exhaust system, front seat monitor upholstery by Thornton's Auto Upholstery, 20" Switchblade wheels from Budnik Wheels, Low profile BF Goodrich tires, and a Bell Tech front grill.

Long-lasting
White LED
display

DRIVE
distortion
reduction
circuitry

High-voltage
pre-outs for
less noise



MASK
self-hiding,
revolving faceplate



RDS displays
broadcast text

System E's
for louder,
cleaner sound

SOURCE UNIT TECHNOLOGY

Mobile Video

Kenwood's mobile video product offers one of the largest and highest resolution screens available for in-vehicle use. Its 7" diagonal, 16:9 format LCD screen allows it to show widescreen format movies across the entire screen. Normal, full and zoom modes offer viewing options. The screen itself is also a touch-screen, which provides easy operation. It includes two audio/video inputs for video games and video players, a selectable video out, audio out, a built-in VHF-UHF tuner with 8 station presets, and a built-in speaker.

MASK

MASK is the world's only self-hiding, 180°-revolving faceplate. Switching off the car's ignition activates twin motorized gear trains driven by a solid metal shaft which turn the faceplate over to show a blank face. During use the faceplate revolves 90° to give access to the CD or cassette opening. Because the opening is behind the faceplate, MASK units feature more room on the face for a larger display.

Flip-down removable faceplate

The new flip-down removable faceplate features a larger display because the cassette, MD or CD slot is behind the faceplate. Pushing a button lowers the faceplate; after inserting a cassette or DISC it can be flipped up to return it to its normal

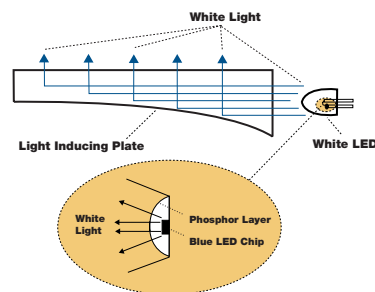
position. The faceplate is easily removed by sliding it left or right off the unit.



The new flip-down removable faceplate, with a CD, MD or cassette slot behind, allows more room on the front for a larger display.

White LED display

Other white displays are made with phosphor sheets, which can fade and become nearly unreadable in as little as three years. Kenwood's white display uses phosphor-coated LEDs; these produce a brighter display which is easier to read from different angles and which has a service life of up to twenty-five times longer than units made with phosphor sheets.

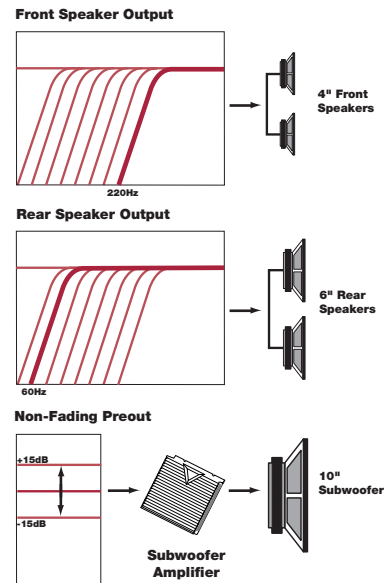


Unlike many others, Kenwood's white LED display uses true phosphor-coated LEDs for long life.

System E's

System E's is an 8-position cutoff filter built into Kenwood eXcelon head units

that can eliminate unwanted bass frequencies from mid-range speakers, producing higher sound levels with no discernible distortion. Select from eight high-pass filter cutoff frequencies (or no cutoff). Filters can be applied independently to the front speakers and preouts, rear speakers and preouts, or both. The front preout can be switched to a non-fading output with level adjustment to control a subwoofer amplifier.



System E's, the crossover built into many eXcelon head units, lets you control where the bass goes, for higher mid-range volume without distortion.

DRIVE distortion reduction filter

As clean as CD sound is, it still contains digital distortion introduced by the digital mastering process itself.

This happens because digital processing

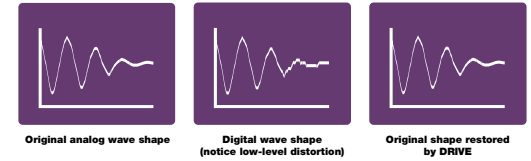
represents smooth

analog sound waves as square stair-steps. To correct this, DRIVE sends the data stream simultaneously through five low-pass digital filters, then delays, gates, and synchronizes them, analyzes the original stream to determine the wave form it is attempting to describe, and then selects the most accurate curve, whether filtered or unfiltered.

Kenwood's patented DRIVE is the only circuitry that virtually eliminates this distortion.

High-voltage pre-outs

When a head unit produces more voltage, it produces a higher sound level above a system's noise floor (the electrical noise and RF interference that exists in any system). In practice, this means much cleaner sound



Kenwood's exclusive DRIVE is the only circuitry that can actually restore the natural wave shape of sound from the distorted stair-step shape produced by digital processing.

overall. Several Kenwood models offer 4-volt preouts, double the typical 2-volt output, and the KDC-PS909 offers up to 8 volts in its balanced output mode.

RDS (Radio Data Service)

Kenwood models equipped with RDS can display text broadcast by RDS radio stations, information such as the station's format, call letters, song, album and artist information, time and temperature, contest information, traffic bulletins, and even the current subject of a call-in talk show.

Inside the Expedition: Source Unit

The front, rear, and non-fade preouts of the KDC-PS909 MASK CD player/tuner are set at 4 volts and connected to the KEC-600 electronic crossover. The non-fade outputs, along with the auxiliary input on the KEC-600 electronic crossover, allow the subwoofer level to be controlled from the head unit. To see how a particular source unit would



fit in your system, check out our "Build a Car Audio System" page on the Kenwood Web site: www.kenwoodusa.com

Mobile Video

LZ-700W

Widescreen Mobile TV

- 7-Inch Wide LCD Screen
- Widescreen (16:9) Aspect Ratio
- 3 Selectable Screen Viewing Modes: Normal, Full, and Zoom
- Optical Touch-Screen Control
- 2 Audio/Video Inputs
- 1 Audio output
- 1 Selectable video output
- 4-channel Diversity Antenna System
- Auto/Manual Dimmer
- Remote compatible



KDC-PS909

CD Tuner with Changer Control

- MASK Self-Hiding Revolving Faceplate
- Integrated Quad 1-Bit Digital-to-Analog Converter: 20-Bit Resolution
- DRIVE Distortion Reduction Circuitry
- 0-Bit Mute
- Disc naming for in-dash and changer
- High Voltage Preamp Output: 8 V Balanced, 4 V Unbalanced
- White LED Display
- Front, Rear and Non-Fading Gold-Plated RCA Preouts
- Radio Data System (RDS)
- Full-Function 10-Key Remote
- CD Text



KDC-PS809

CD Receiver with Changer Control

- MASK Self-Hiding Revolving Faceplate
- Maximum Power: 40 Watts x 4
- Full Bandwidth Power (less than 1% THD): 22 Watts x 4
- System E's Crossover System
- Disc naming for in-dash and changer
- High Voltage Preamp Output
- White LED Dot Matrix Display
- Full-Function 10-Key Remote
- CD Text
- Front, Rear Gold-Plated RCA Preouts
- Radio Data System (RDS)



KDC-PS709

CD Receiver with Changer Control

- Flip-Down Removable Faceplate with Carrying Case
- Maximum Power: 40 Watts x 4
- Full Bandwidth Power (less than 1% THD): 22 Watts x 4
- System E's Crossover System
- Disc naming for in-dash and changer
- High Voltage Preamp Output
- White LED Display
- Front, Rear Gold-Plated RCA Preouts
- CD Text
- Radio Data System (RDS) Cassette/Receivers



KRC-PS955

Cassette Receiver with Changer Control

- MASK Self-Hiding Revolving Faceplate
- Maximum Power: 40 Watts x 4
- Full Bandwidth Power (less than 1% THD): 22 Watts x 4
- System E's Crossover System
- High Voltage Preamp Output
- Dolby Noise Reduction: B, C
- Radio Data System (RDS)
- Changer Control with Disc Naming
- White LED Display
- Front, Rear Gold-Plated RCA Preouts
- Full-Function 10-Key Remote



KRC-PS655

Cassette Receiver with Changer Control

- Flip-Down Removable Faceplate with Carrying Case
- Maximum Power: 40 Watts x 4
- Full Bandwidth Power (less than 1% THD): 22 Watts x 4
- System E's Crossover System
- Changer Control with Disc Naming
- White LED Display
- Front, Rear Gold-Plated RCA Preouts
- Radio Data System (RDS)
- CD/MD Changers/Players/Controllers



KMD-70R

Mini Disc Receiver with Changer Control

- Flip-Down Removable Faceplate with Carrying Case
- Maximum Power: 40 Watts X 4
- Full Bandwidth Power (less than 1% THD): 22 Watts X 4
- System E's Crossover System
- White LED Display
- Front, Rear RCA Preouts
- Kenwood Mini Disc Transport Mechanism
- 10-Second Digital Anti Skip
- Changer Control with Disc Naming



KDC-CPS81

10-Disc CD Changer

- Compatible with All Kenwood Units with Changer Control
- 10-Disc Capacity
- Integrated Quad 1-Bit Digital-to-Analog Converter: 20-Bit Resolution
- 0-Bit Mute
- DRIVE Distortion Reduction Circuitry
- Disc naming: 100 Disc Memory
- CD Text
- Allows control of additional changer or auxiliary input for LZ-700W



KCA-R51FP

Add-On Changer Controller

- Connects to Most Car Audio Systems through FM Tuner
- Preout with Adjustable Output Level (0 ~ 1.15 V)
- Full-Function 10-Key Remote
- Thin Dash-Mount Display/Controller
- Flush-Mount Trim Panel for Dashboard Mounting



**Copper
bus bars reduce
power loss**

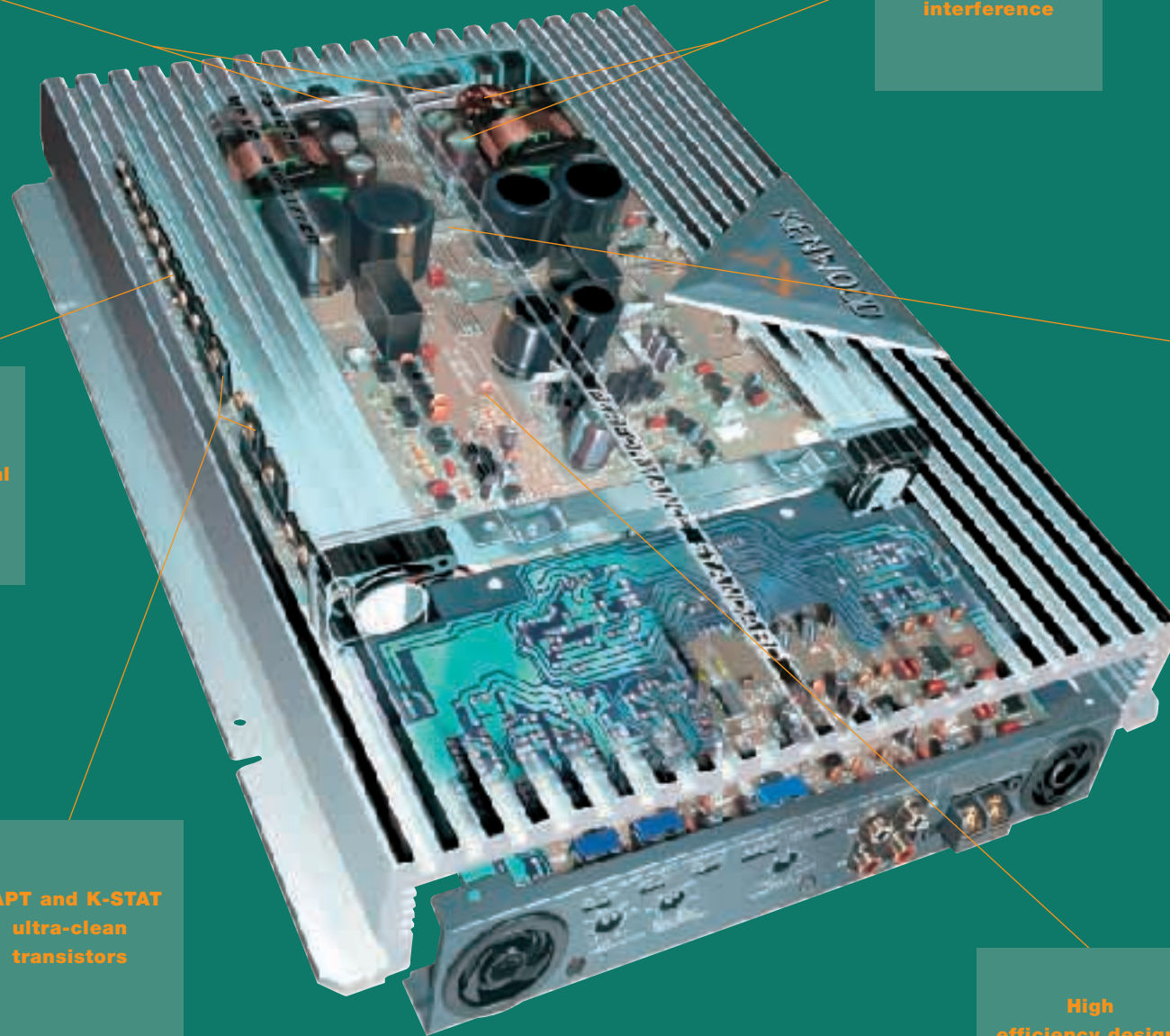
**Noise filters
cut electrical
interference**

**Sigma servo
delivers punchy
bass**

**Fast recovery
diodes for musical
accuracy**

**LAPT and K-STAT
ultra-clean
transistors**

**High
efficiency design:
more wattage,
less heat**



AMPLIFIER TECHNOLOGY

High-efficiency design

Some amplifiers are only 40% efficient; the rest of the power simply produces heat. Kenwood amps are about 60% efficient. They produce more sound from less power (making a second battery or a large alternator unnecessary) and operate at a lower temperature, which makes them more reliable and gives them a longer service life.

Noise filtering

A vehicle's electrical system can feed noise directly into an amp if the voltage supply isn't well filtered. All Kenwood amplifiers use both a coil and capacitor to clean the voltage before it reaches the power supply, which improves efficiency (because more energy is freed to amplify music instead of noise) and results in clearer music.

Copper bus bar

Power inside an amplifier can be lost simply by the how current is moved from one place to another. With thin wire or circuit board traces, the loss can be up to 30 watts. Kenwood's top amplifiers avoid this problem by using several solid copper bus bars. Each bar has at least a hundred times more mass than a circuit board trace. Each is made from oxygen-free copper for maximum conductivity and coated with nickel to prevent corrosion.

MOSFET transistors

The power supplies in Kenwood eXcelon amplifiers use only MOSFET (Metal Oxide Semiconductor-Field Effect Transistor) switching transistors. Controlled by voltage rather than by current, MOSFETs have significantly higher switching speed than bipolar transistors. They generate almost no heat, so they offer quick response, excellent linearity, and high efficiency.

Copper-shielded EE core transformer

Most of Kenwood's large amplifiers use an EE transformer. Its core is constructed of two E-shaped pieces of iron laminated together and surrounded by copper shielding. This design greatly reduces the radio frequency interference that amplifiers produce which can leak into the audio stage or the tuner.

Fast-recovery diodes

Diodes change the waveform of AC power into the straight line of DC power. The faster they react, the purer the DC power will be. Conventional diodes can handle a surge of 30 amps and drop 1.5 volts; the new fast-recovery diodes used in the best Kenwood amplifiers handle a surge of 60 amps with a drop of only .98 volts. The difference is that conventional diodes leave larger and longer 'nicks' in the DC power, which comes out as distortion. This new diode is far closer

to perfect than anything built before it. It cost twice as much, but the clean power it produces is well worth it.

Audio-use capacitors

Kenwood amplifiers use capacitors that are not only larger than most but which are designed for audio use only. They charge and discharge very rapidly and have very low resistance due to oxygen-free copper leads, all of which means they greatly improve the ability of a Kenwood amplifier to reproduce loud, rapidly changing music.



Big, fast changes in music require big, fast capacitors, such as those in Kenwood eXcelon amps.

Separate power sources for driver and output stages

When a signal comes into an amp, it's increased first by the driver stage and then boosted to full volume by the final stage. Most amplifiers run both stages from the same power supply, so when the final stage needs more power (to reproduce a loud bass note, for example) the driver stage loses power and distorts. Kenwood

amplifiers have two power supplies, one for each stage. This keeps both stages separate and clean.



Dual power supply means the final stage of amplification won't rob power from the driver stage, which can cause distortion in single-supply car amps when demand is heavy.

LAPT (Linear Amplification Power Transistor)

Conventional transistors in high-power amplifiers are large and distort easily. LAPT transistors are actually made up

of several small transistors, which makes them fast, efficient, stable, highly linear, and able to reproduce music over a wide dynamic range. The result is less distorted, more accurate sound.

K-STAT transistors

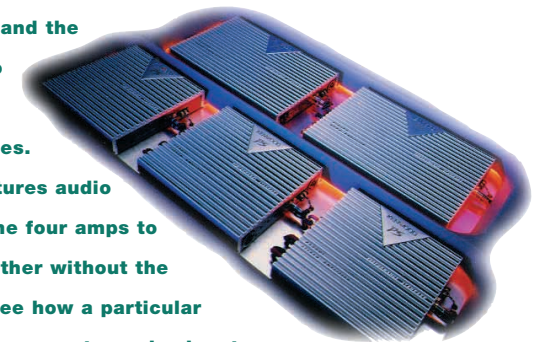
As a transistor heats and cools, the voltage at which it produces the lowest distortion changes. In all other amplifiers this voltage is adjusted using heat sensors outside the transistors, which means the adjustment always lags far behind the transistor's actual temperature. To solve the problem, Kenwood developed its exclusive K-STAT transistor, the only transistor designed exclusively for audio use that incorporates a heat sensor in the transistor itself. This allows for

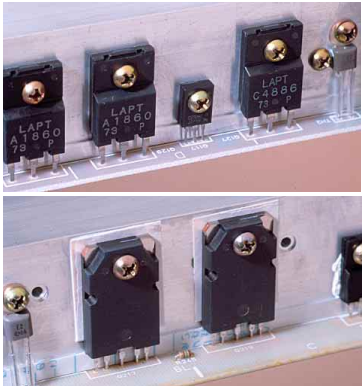
Inside the Expedition: Amplifiers

Highs and mids go to two 150-watt KAC-PS200Ts; mids go to the 200-watt KAC-PS300T; lows to two 400-watt KAC-PS400Ms, which are set with the infrasonic filter on to eliminate power-wasting subsonic frequencies and the band filter engaged to eliminate the natural peak inside the vehicles.

The KAC-PS400M features audio in and out, allowing the four amps to be daisy-chained together without the need for Y-cords. To see how a particular amplifier would fit in your system, check out our

"Build a Car Audio System" page on the Kenwood Web site: www.kenwoodusa.com

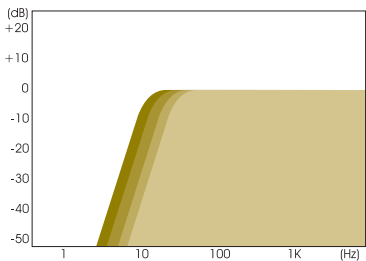




Heat sensor between transistors (above) cannot react fast enough to prevent distortion. K-STAT transistors (below) have heat sensors built-in, and react instantly.

instantaneous adjustments in operating voltage, which significantly reduces distortion. The need for a warm-up period is eliminated, and performance is consistent at all operating temperatures.

Infrasonic filter



The infrasonic filter on our amps can be set to cut frequencies below the threshold of human hearing, which allows more power for audible music.

Although the human ear can't hear bass frequencies much below 25 Hz, CDs often have music at this level, which an amplifier will try to reproduce, wasting a large amount of power. Kenwood PS amplifiers have a selectable infrasonic

filter that eliminates these frequencies, which greatly increases the power available for music.

Band-reject filter

The interior of every vehicle resonates at a certain frequency, which can cause unwanted peaks in the system's frequency response. The Kenwood KAC-PS400 amplifier, however, has an adjustable band-reject filter to damp the resonant frequency and restore fidelity.

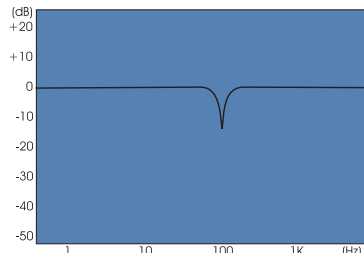


Fig. 1

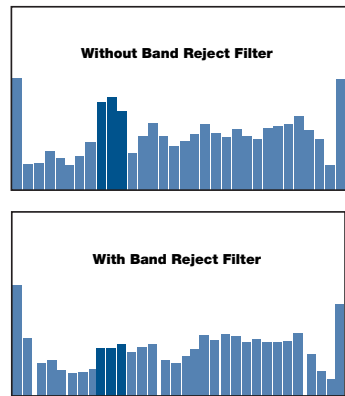
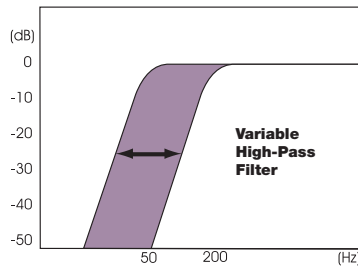


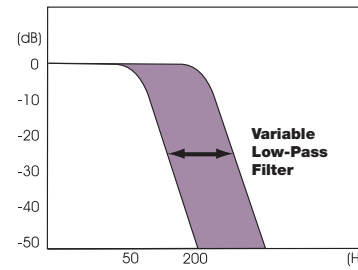
Fig. 2

The band reject filter can be set to eliminate an unwanted resonance (Fig. 1) inside a vehicle which results in a much smoother sound as measured by a realtime analyzer (Fig. 2)

Electronic Crossover



Variable low-pass and high-pass filters can be set to different frequencies to best match the systems speakers.



Kenwood eXcelon amplifiers with built-in electronic crossovers are extremely flexible. Variable high- and low-pass filters make it easy to overlap or adjust frequencies to smooth out a peak or dip in acoustic frequency response around the crossover frequency. On multi-channel amps, front and rear channels can be controlled individually, so the rear channels could be used in low-pass filter mode to power two subwoofers, while the front channels could be used in high-pass filter mode to power one or two midrange/tweeter speakers.

Sigma Drive and Sigma Servo

To keep a woofer or subwoofer from vibrating after reproducing a note, an amplifier must control the speaker's motion as precisely as possible. Kenwood's exclusive Sigma Drive and Sigma Servo circuits do this by giving the amplifier the instantaneous feedback needed to damp the speaker. Sigma Drive tracks this feedback from the amp's speaker connections, while Sigma Servo uses two additional wires which run all the way to the speaker

itself to track its movement. While the damping factor for a typical amplifier is around 100, Sigma Drive more than doubles this figure, and Sigma Servo boosts it to 9,990.

Protection circuits

Amplifiers can be damaged beyond repair by heat, static electricity, over-voltage, under-voltage, over-current, a short in the speaker (either within the voice coil or to ground), reversing the input voltage connection, or disconnecting the ground. While most manufacturers provide protection against some of these conditions, Kenwood amplifiers provide protection circuits for all of them. Fuses are built into the chassis instead of on wire (as in many amplifiers) which ensures that protection will be connected and working at all times. The most powerful Kenwood amplifiers also protect against operation when one fuse is blown, which would cause only half the amplifier to work. Kenwood amplifiers even protect speakers from blowing by shutting down if direct current is detected on a speaker output.

Fig. 1: Without Sigma Servo

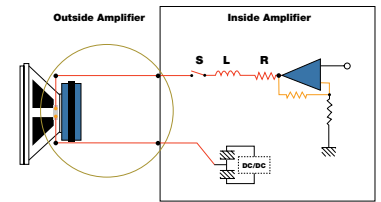
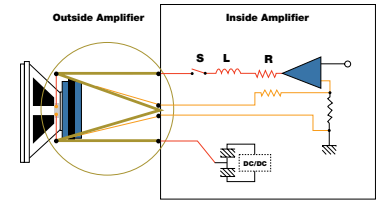


Fig. 2: With Sigma Servo



Stopping unwanted speaker movement (damping) is accomplished in most amplifiers by using a feedback loop inside the amplifier (Fig. 1). Kenwood's exclusive Sigma Servo system (Fig. 2) uses two extra wires to extend the feedback loop all the way to the speaker itself, which results in far more accurate performance. A typical amp's damping factor is around 100. For Sigma Servo amps, it's 9,000—which produces a much tighter bass.



KAC-PS400M

Mono Power Amplifier

- Power Output at 4 Ohms, at 12 Volts: 200 Watts x 1 (less than 0.05% THD, 20Hz - 20kHz)
- Power Output at 2 Ohms, at 12 Volts: 400 Watts X 1 (less than 0.5% THD, 1kHz)
- Power Output at 4 Ohms, at 14.4 Volts: 300 Watts x 1 (less than 0.05% THD, 20Hz - 20kHz)
- Power Output at 2 Ohms, at 14.4 Volts: 600 Watts X 1 (less than 0.5% THD, 1kHz)
- Maximum Output Power: 1200 Watts x 1
- Sigma Servo
- Power MOSFET Switching Power Supply
- Dual Power Supply
- Selectable Balanced Line Input
- Variable Low-Pass Electronic Crossover
- Variable Band Reject Filter
- Selectable Infrasonic Filter



KAC-PS300T

2-Channel Power Amplifier

- Power Output at 4 Ohms, at 12 Volts: 75 Watts x 2 (less than 0.05% THD, 20Hz - 20kHz)
- Power Output at 2 Ohms, at 12 Volts: 150 Watts X 2 (less than 0.5% THD, 1kHz)
- Bridged Power Output at 12 Volts: 300 Watts X 1 (less than 0.5% THD, 1kHz)
- Power Output at 4 Ohms, at 14.4 Volts: 100 Watts x 2 (less than 0.05% THD, 20Hz - 20kHz)
- Power Output at 2 Ohms, at 14.4 Volts: 200 Watts X 2 (less than 0.5% THD, 1kHz)
- Bridged Power Output at 14.4 Volts: 400 Watts X 1 (less than 0.5% THD, 1kHz)
- Maximum Output Power: 800 Watts x 1
- Sigma Drive
- Power MOSFET Switching Power Supply
- Dual Power Supply
- Selectable Balanced Line Input
- Variable Low-Pass Electronic Crossover
- Variable High-Pass Electronic Crossover
- Selectable Infrasonic Filter



KAC-PS200T

2-Channel Power Amplifier

- Power Output at 4 Ohms, at 12 Volts: 50 Watts x 2 (less than 0.05% THD, 20Hz - 20kHz)
- Power Output at 2 Ohms, at 12 Volts: 100 Watts X 2 (less than 0.5% THD, 1kHz)
- Bridged Power Output at 12 Volts: 200 Watts X 1 (less than 0.5% THD, 1kHz)
- Power Output at 4 Ohms, at 14.4 Volts: 75 Watts x 2 (less than 0.05% THD, 20Hz - 20kHz)
- Power Output at 2 Ohms, at 14.4 Volts: 150 Watts X 2 (less than 0.5% THD, 1kHz)
- Bridged Power Output at 14.4 Volts: 300 Watts X 1 (less than 0.5% THD, 1kHz)
- Maximum Output Power: 600 Watts x 1
- Sigma Drive
- Power MOSFET Switching Power Supply
- Selectable Balanced Line Input
- Variable Low-Pass Electronic Crossover
- Variable High-Pass Electronic Crossover
- Selectable Infrasonic Filter



KAC-PS500F

Multi-Channel Power Amplifier

- Power Output at 4 Ohms, at 12 Volts: 50 Watts x 4 (less than 0.05% THD, 20 Hz - 20 kHz)
- Power Output at 2 Ohms, at 12 Volts: 100 Watts X 4 (less than 0.5% THD, 1kHz)
- Bridged Power Output at 12 Volts: 200 Watts X 2 (less than 0.5% THD, 1kHz)
- Power Output at 4 Ohms, at 14.4 Volts: 100 Watts x 2 (less than 0.05% THD, 20Hz - 20kHz)
- Power Output at 2 Ohms, at 14.4 Volts: 150 Watts X 4 (less than 0.5% THD, 1kHz)
- Bridged Power Output at 14.4 Volts: 300 Watts X 2 (less than 0.5% THD, 1kHz)
- Maximum Output Power: 600 Watts x 2
- Sigma Servo
- K-STAT Discrete Audio Amplifier
- Power MOSFET Switching Power Supply
- Dual Power Supply
- Variable Low-Pass Electronic Crossover
- Variable High-Pass Electronic Crossover
- Selectable Infrasonic Filter

**Pearl mica
polypropylene
cone for
accurate mids**

**Flat-edge
diaphragm
controls
resonance**



**Balanced
dome tweeters
for clear, wide
sound**

**Multiple-
component
crossover for
smooth
response**

**PPTA film
tweeters deliver
accurate highs**

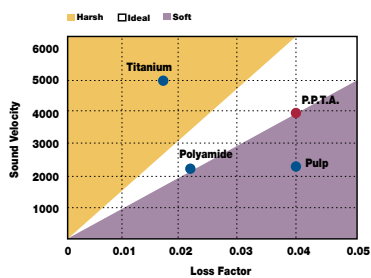
S P E A K E R T E C H N O L O G Y

Pearl mica-injected polypropylene woofer cones

Kenwood pearl mica injection-molded polypropylene woofer cones are made from a higher grade of pearl mica, with uniform-sized crystals that bond together more tightly to produce a stronger cone. In addition, the cones are molded from the apex out—instead of being pressed from flat sheets, which is typical—so they are the same thickness throughout. This strength and consistency is what helps Kenwood polypropylene cones deliver more accurate sound across the entire frequency range.

PPTA film tweeters

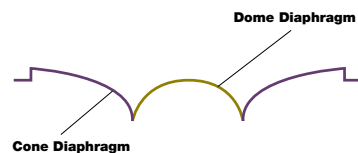
Heat can make tweeters expand, which changes their sound. Kenwood uses poly para-phenylene terephthalamide (PPTA) to make tweeters that remain stable through temperature changes. PPTA also has a higher internal loss and higher propagation speed than typical tweeter material, which means that a PPTA tweeter responds quickly to a signal and stops cleanly, producing more accurate highs.



PPTA tweeter material features the best combination of high velocity for quick response and high loss for clean notes

Balanced dome tweeters

Cone tweeters are clear, but beam sound in one direction. Dome tweeters disperse sound, but aren't as clear. Balanced Dome Tweeters combine the advantages of both. The area of the dome and the area of the cone are precisely matched (which is why they are called balanced) resulting in clean highs that can be heard from a variety of listening positions inside the car.



Kenwood balanced dome tweeters combine the clarity of cones and the wide dispersion of domes.

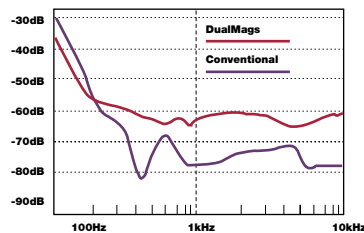
Flat-edge diaphragms

KFC-HQ715 and KFC-HQ695 pearl mica injection-molded polypropylene woofer cones have a flat outer edge that stiffens the cone. By reducing flexing, these cones control resonance and reduce midrange distortion.

Multiple-component crossover networks

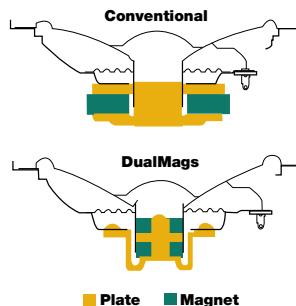
KFC-HQ715 and KFC-HQ695 have multiple-component multi-way passive crossover networks which are closer to the sophisticated crossovers found in car audio component packages than the simple crossovers typically used in three-way speakers. These crossovers produce greater accuracy and a smoother response over the full range of the speaker.

DualMag speakers



DualMag speakers show significantly more accurate response compared to conventional speaker design.

Instead of using iron ferrite magnets that surround the voice coil as in traditional speaker design, Kenwood's patented DualMag design uses two small but very powerful neodymium magnets inside the voice coil. The magnets are turned so their like poles face each other. This puts far more magnetic force in the voice coil gap, which controls the cone much more tightly for more accurate sound. Weight is reduced by up to two-thirds and the slimmer profile fits into tighter spots during installation.



Conventional speaker use heavy iron magnets outside the voice coil; DualMags use much more powerful Neodymium inside the voice coil for light weight and improved performance.

Inside the Expedition: Crossover

The parametric equalizer in the KEC-600 electronic crossover is selected to function on the output to the subwoofer amplifiers, while the output to the midrange/tweeter component amplifiers are connected to the midrange output with the high side set to "through" to take advantage of the speaker components' two-way component passive crossover network. The KDC-PS909 head unit's non-fading preout is connected to the KEC-600's auxiliary input to allow control of the subwoofer's level from the head unit. To see how a particular crossover or EQ unit would fit in your system, check out our "Build a Car Audio System" page on the Kenwood Web site: www.kenwoodusa.com



Inside the Expedition: Speakers

Two KFC-HQR52 midrange/tweeter component sets (each set includes a 5 1/4" DualMag midrange speaker, 1" soft dome tweeter, and passive crossover) are installed in kick pods to help equalize the path (listening distance) to the driver and improve staging. The tweeters swivel to allow aiming up to the listening area. Two KFC-W1602 6" mid-woofers handle midbass frequencies, while four KFC-WS302 12" small enclosure woofers were installed in sealed boxes for a warm sound with no port noise and a gentle roll-off. To see how a particular speaker would fit in your system, check out our "Build a Car Audio System" page on the Kenwood Web site: www.kenwoodusa.com





KFC-HQR62

6-1/2" DualMag Midrange and 1" Tweeter Package

- DualMags Midrange Magnet Technology
- Pearl Mica Injection-Molded Polypropylene Cone
- Ultra Lightweight Soft Polyamide Dome Tweeter
- 2-Way Component Passive Crossover
- Power Handling: 150 Watts
- Frequency Response: 35Hz - 26kHz



KFC-HQR52

5" DualMag Midrange and 1" Tweeter Package

- DualMags Midrange Magnet Technology
- Pearl Mica Injection-Molded Polypropylene Cone
- Ultra Lightweight Soft Polyamide Dome Tweeter
- 2-Way Component Passive Crossover
- Power Handling: 150 Watts
- Frequency Response: 40Hz - 26kHz



KFC-HQR42

4" DualMag Midrange and 1" Tweeter Package

- DualMags Midrange Magnet Technology
- Pearl Mica Injection-Molded Polypropylene Cone
- Ultra Lightweight Soft Polyamide Dome Tweeter
- 2-Way Component Passive Crossover
- Power Handling: 150 Watts
- Frequency Response: 50Hz - 26kHz



KFC-HQT12

1" Soft-Dome Tweeter

- Ultra Lightweight Soft Polyamide Dome
- Flexible 3-Way Mounting (Surface/Flush/Angle)
- Swivel Tweeter Mount
- Power Handling: 150 Watts
- Frequency Response: 4kHz - 26kHz



KFC-HQ165

6" 2-Way Speaker

- Pearl Mica Injection-Molded Polypropylene Cone
- PPTA Film Balanced Dome Tweeter
- Power Handling: 150 Watts
- Frequency Response: 35Hz - 30kHz



KFC-HQ135

5" 2-Way Speaker

- Pearl Mica Injection-Molded Polypropylene Cone
- PPTA Film Balanced Dome Tweeter
- Power Handling: 100 Watts
- Frequency Response: 40Hz - 30kHz



KFC-HQ105

4" 2-Way Speaker

- Pearl Mica Injection-Molded Polypropylene Cone
- PPTA Film Balanced Dome Tweeter
- Power Handling: 70 Watts
- Frequency Response: 45Hz - 30kHz



KFC-HQ715

7" x 10" 3-Way Speaker

- Designed to Fit Many 6" x 9" Cutouts Providing 30% More Cone Area
- Pearl Mica Injection-Molded Polypropylene Cone
- Butyl Rubber Surround
- PPTA Film Balanced Dome Tweeter
- Power Handling: 280 Watts
- Frequency Response: 25Hz - 30kHz



KFC-HQR16

6" DualMag 3-Way Speaker

- DualMag Woofer Magnet Technology
- Injection-Molded Polypropylene Cone
- Bridged Tweeter and Midrange Support
- Power Handling: 150 Watts
- Frequency Response: 35Hz - 30kHz



KFC-HQR13

5" DualMag 2-Way Speaker

- DualMag Woofer Magnet Technology
- Injection-Molded Polypropylene Cone
- Bridged Tweeter Support
- Power Handling: 100 Watts
- Frequency Response: 40Hz - 30kHz



KFC-HQR10

4" DualMag Speaker

- DualMag Woofer Magnet Technology
- Injection-Molded Polypropylene Cone
- Bridged Tweeter Support
- Power Handling: 70 Watts
- Frequency Response: 45Hz - 30kHz



KFC-HQW251/2518

10" Woofer

- Non-Pressed Pulp Cone
- Diecast Aluminum Frame
- Power Handling: 600 Watts
- Frequency Response: 18Hz - 2kHz
- KFC-HQW251: 4 ohms
- KFC-HQW2518: 8 ohms



KFC-HQ695

6" x 9" 3-Way Speaker

- Pearl Mica Injection-Molded Polypropylene Cone
- Butyl Rubber Surround
- PPTA Film Balanced Dome Tweeter
- Power Handling: 260 Watts
- Frequency Response: 25Hz - 27kHz



KFC-HQ575C

5" x 7" 2-Way Speaker

- Pearl Mica Injection-Molded Polypropylene Cone
- Butyl Rubber Surround
- Power Handling: 120 Watts
- Frequency Response: 35Hz - 30kHz
- PPTA Film Balanced Dome Tweeter



KFC-HQ465C

4" x 6" 2-Way Speaker

- Pearl Mica Injection-Molded Polypropylene Cone
- Butyl Rubber Surround
- Power Handling: 150 Watts
- Frequency Response: 40Hz - 30kHz
- PPTA Film Balanced Dome Tweeter



KFC-HQW301/3018

12" Woofer

- Non-Pressed Pulp Cone
- Diecast Aluminum Frame
- Power Handling: 1,000 Watts
- Frequency Response: 18Hz - 2kHz
- KFC-HQW301: 4 ohms
- KFC-HQW3018: 8 ohms

CD Receiver/Tuner Features and Specifications

FEATURES	KDC-PS909	KDC-PS809	KDC-PS709
Compact Disc Features			
Integrated Quad 1-Bit Digital-to-Analog Converter	20-Bit Resolution	Yes	Yes
8-Times Oversampling Digital Filter	20-Bit Resolution	Yes	Yes
DRIVE Distortion Reduction Circuitry	Yes		
0-Bit Mute	Yes		
Precision Digital Timing (DPAC)	Yes	Yes	Yes
Digital Optimum Servo Control	Yes	Yes	Yes
Kenwood-Designed Superior Disc Transport	Yes	Yes	Yes
CD Text	12 Characters	12 Characters	8 Characters
Disc Naming	100 Discs	30 Discs	10 Discs
Random Play	Track	Track	Track
Repeat Play	Track, Disc	Track, Disc	Track, Disc
Changer Control Features			
Changer Control	2 (with KCA-200 or Compatible Changer)	2 (with KCA-200 or Compatible Changer)	2 (with KCA-200 or Compatible Changer)
Direct Track and Disc Access (with Remote)	Yes	Yes	Yes
Disc Naming	up to 100 Discs (Depending on Changer)	up to 100 Discs (Depending on Changer)	up to 100 Discs (Depending on Changer)
Simplified Alphanumeric Disc Naming (with Remote)	Yes	Yes	Yes
Disc Name Preset Play (with Remote)	Yes	Yes	Yes
CD Text	12 Characters	12 Characters	8 Characters
Random Play	Track, Disc	Track, Disc	Track, Disc
Repeat Play	Track, Disc	Track, Disc	Track, Disc
Tuner Features			
Radio Data System (RDS)	Yes	Yes	Yes
Kenwood CR-2 Advanced Tuner		Yes	Yes
Kenwood CR-1 Tuner	Yes		
High-Speed Multipath Control (CRSC) with ANRC	Yes	Yes	Yes
Station Naming	24 Stations	24 Stations	24 Stations
Simplified Alphanumeric Station Naming (with Remote)	Yes	Yes	Yes
Station Name Preset Play	Yes	Yes	Yes
Station Presets	24 (18 FM, 6 AM)	24 (18 FM, 6 AM)	24 (18 FM, 6 AM)
Preset Seek Tuning	Yes	Yes	Yes
Direct Access Tuning (with Remote)	Yes	Yes	Yes
Automatic Memory Entry	Yes	Yes	Yes
Tuner Mode Antenna Control		Yes	Yes
General Features			
System E's Crossover System		Yes	Yes
Plus/Minus Power Source	Yes	Yes	Yes
Selectable Balanced/Unbalanced Output	Yes		
Independent Non-Fading Level Control with Defeat	Yes		
High Voltage Preamp Output	8V Balanced, 4V Unbalanced	4V	4V
Low Output Impedance (80 Ohms)	Yes	Yes	Yes
Front, Rear, and Non-Fading Gold-Plated RCA Preouts	Yes		
Front and Rear RCA Preouts		Gold-Plated	Gold-Plated
Selectable Front/Non-Fading Preout		with ± Level Control	with ± Level Control
Preout/Power Fader		Yes	Yes
Preout Fader	Yes		
Electronic Audio Control (Volume, Balance, Fader, Bass, Treble)	Yes	Yes	Yes
Loudness Control	Yes	Yes	Yes
Source Tone Memory	Yes	Yes	Yes
Attenuator with Smooth Volume Return	-20dB or -60dB	-20dB	-20dB
MASK Self-Hiding Revolving Faceplate	Yes	Yes	
Flip-Down Removable Faceplate with Carrying Case			Yes
Ebony Faceplate	Yes	Yes	Yes
LCD Display	4-Color with Moving Graphics and White LED Backlight	4-Color with Moving Graphics and White LED Backlight	4-Color with Moving Graphics and White LED Backlight
Dot Matrix Readout		16 Characters (Upper and Lower Case)	
5 Character Dot Matrix Graphics Display		10-Band Spectrum Analyzer and Source Display	
Display Contrast Adjustment		Yes	
Defeatable Illumination	Yes		
Auto Dimmer Wire		Yes	Yes
Programmable Security Code System	Yes	Yes	
Touch-Tone Keys	Defeatable	Defeatable	Defeatable
Switchable Function Key Illumination	Green, Amber	Green, Amber	Green, Amber
Disabled System Indicator			Yes
Iso-Mount Capability for Japanese Vehicles	Yes	Yes	Yes
Full-Function 10-Key Remote	Yes	Yes	Optional

SPECIFICATIONS	KDC-PS909	KDC-PS809	KDC-PS709
Performance Specifications			
Power Ratings			
Maximum Power		40 Watts x 4	40 Watts x 4
Full Bandwidth Power (<1% THD)		22 Watts x 4	22 Watts x 4
CD Specifications			
Digital-to-Analog Converter	1-Bit (20-Bit Resolution)	1-Bit	1-Bit
Digital Filter	8-Times Oversampling (20-Bit Resolution)	8-Times Oversampling	8-Times Oversampling
Frequency Response	10Hz - 20kHz (+/- 1dB)	10Hz - 20kHz (+/- 1dB)	10Hz - 20kHz (+/- 1dB)
Total Harmonic Distortion	0.01% (1kHz)	0.01% (1kHz)	0.01% (1kHz)
Signal-to-Noise Ratio	105dB (1kHz)	93dB (1kHz)	93dB (1kHz)
Dynamic Range	100dB	93dB	93dB
Channel Separation	85dB	85dB	85dB
Tuner Specifications			
FM Useable Sensitivity (0.8µV/75 ohms, 30dB S/N)	9.3dBf	9.3dBf	9.3dBf
FM Quieting Sensitivity (1.6µV/75 ohms, 50dB S/N)	15.2dBf	15.2dBf	15.2dBf
FM Selectivity (+/- 400kHz)	>/- 80dB	>/- 80dB	>/- 80dB
FM Signal-to-Noise Ratio (Mono)	75dB	70dB	70dB
FM Stereo Separation (1kHz)	40dB	40dB	40dB
AM Useable Sensitivity (25µV, 20dB S/N)	28dBµ	28dBµ	28dBµ
Audio Specifications			
Preamp Output Level	8V (Balanced), 4V (Unbalanced)	4V	4V
Preamp Output Impedance	</- 80 ohms	</- 80 ohms	</- 80 ohms
Tone Control Characteristics	+/- 10dB at 100Hz (Bass), +/- 10dB at 10kHz (Treble)	+/- 10dB at 100Hz (Bass), +/- 10dB at 10kHz (Treble)	+/- 10dB at 100Hz (Bass), +/- 10dB at 10kHz (Treble)
Product Dimensions and Weight			
Width	7-3/16"	7-3/16"	7-3/16"
Height	2-1/16"	2-1/16"	2-1/16"
Depth	6-3/8"	6-1/2"	6-5/16"
Weight	4 lb	4.4 lb	3.3 lb

Cassette Receiver Features and Specifications

FEATURES	KRC-PS955	KRC-PS655
Cassette Player Features		
Full-Logic Auto-Reverse Transport	Yes	Yes
Double-Guttered Tape Head	Yes	Yes
Dolby Noise Reduction	B, C	B
Metal Tape Selector	Yes	Yes
Tape Advance	Yes	Yes
Repeat	Track	Track
Blank Skip	Yes	Yes
Tuner Call during FF/REW	Yes	Yes
Changer Control Features		
Changer Control	2 (with KCA-200 or Compatible Changer)	2 (with KCA-200 or Compatible Changer)
Direct Track and Disc Access (w/Remote)	Yes	Yes
Disc Naming	up to 100 Discs (Depending on Changer)	up to 100 Discs (Depending on Changer)
Simplified Alphanumeric Disc		
Naming (with Remote)	Yes	Yes
Disc Name Preset Play (with Remote)	Yes	Yes
CD Text	12 Characters	8 Characters
Random Play	Track, Disc	Track, Disc
Repeat Play	Track, Disc	Track, Disc
Tuner Features		
Radio Data System (RDS)	Yes	Yes
Kenwood CR-2 Advanced Tuner	Yes	Yes
High-Speed Multipath Control (CRSC) with ANRC	Yes	Yes
Station Naming	Yes	Yes
Simplified Alphanumeric	Yes	Yes
Station Naming (with Remote)	Yes	Yes
Station Name Preset Play	Yes	Yes
Station Presets	24 (18 FM, 6 AM)	24 (18 FM, 6 AM)
Preset Seek Tuning	Yes	Yes
Direct Access Tuning (with Remote)	Yes	Yes
Automatic Memory Entry	Yes	Yes
Tuner Mode Antenna Control	Yes	Yes
General Features		
System E's Crossover System	Yes	Yes
Plus/Minus Power Source	Yes	
High Voltage Preamp Output	4V in CD Changer Mode	
Low Output Impedance (80 Ohms)	Yes	
Selectable Front/Non-Fading Preout	with ± Level Control	with ± Level Control
Front and Rear RCA Preouts	Gold-Plated	Gold-Plated
Preout/Power Fader	Yes	Yes
Electronic Audio Control (Volume, Balance, Fader, Bass, Treble)	Yes	Yes
Loudness Control	Yes	Yes
Source Tone Memory	Yes	Yes
Attenuator with Smooth Volume Return	-20dB	-20dB
MASK Self-Hiding Revolving Faceplate	Yes	
Flip-Down Removable Faceplate with Carrying Case		Yes
Ebony Faceplate	Yes	Yes
LCD Display	4-Color with Moving Graphics and White LED Backlight	4-Color with Moving Graphics and White LED Backlight
Auto Dimmer Wire	Yes	Yes
Programmable Security Code System	Yes	
Touch-Tone Keys	Defeatable	Defeatable
Switchable Function		
Key Illumination	Green, Amber	Green, Amber
Disabled System Indicator		Yes
Iso-Mount Capability for Japanese Vehicles	Yes	Yes
Full-Function 10-Key Remote	Yes	Optional

SPECIFICATIONS	KRC-PS955	KRC-PS655
Performance Specifications		
Power Ratings		
Maximum Power	40 Watts x 4	40 Watts x 4
Full Bandwidth Power (<1% THD)	22 Watts x 4	22 Watts x 4
Cassette Specifications		
Frequency Response	30Hz - 20kHz (70µs, +/- 3dB)	30Hz - 18kHz (70µs, +/- 3dB)
Wow & Flutter (WRMS)	0.08%	0.08%
Signal-to-Noise Ratio	73dB (Dolby C), 65dB (Dolby B), 57dB (Dolby Off)	65dB (Dolby B), 57dB (Dolby Off)
Channel Separation	43dB (1kHz)	43dB (1kHz)
Tuner Specifications		
FM Useable Sensitivity (0.8µV/75 ohms, 30dB S/N)	9.3dBf	9.3dBf
FM Quieting Sensitivity (1.6µV/75 ohms, 50dB S/N)	15.2dBf	15.2dBf
FM Selectivity (+/- 400kHz)	>/= 80dB	>/= 80dB
FM Signal-to-Noise Ratio (Mono)	70dB	70dB
FM Stereo Separation (1kHz)	40dB	40dB
AM Useable Sensitivity (25µV, 20dB S/N)	28dBµ	28dBµ
Audio Specifications		
Preamp Output Level	4V (in CD Changer Mode)	1.8V
Preamp Output Impedance	</= 80 ohms	</= 600 ohms
Tone Control Characteristics	+/- 10dB at 100Hz (Bass), +/- 10dB at 10kHz (Treble)	+/- 10dB at 100Hz (Bass), +/- 10dB at 10kHz (Treble)
Product Dimensions and Weight		
Width	7-3/16"	7-3/16"
Height	2-1/16"	2-1/16"
Depth	6-5/16"	6-1/16"
Weight	4 lb	3.1 lb

Compact Disc Changer Features & Specifications

FEATURES	KDC-CPS81
Compact Disc Features	
Integrated Quad 1-Bit Digital-to-Analog Converter	20-Bit Resolution
8-Times Oversampling Digital Filter	20-Bit Resolution
DRIVE Distortion Reduction Circuitry	Yes
0-Bit Mute	Yes
Precision Digital Timing (DPAC)	Yes
Digital Optimum Servo Control	Yes
Kenwood-Designed Anti-Vibration Disc Transport	Yes
CD Text	Yes
Disc Naming	100 Discs
Performance Specifications	
Audio Specifications	
Frequency Response	5Hz - 20kHz (+/- 1dB)
Total Harmonic Distortion	0.005% (1kHz)
Signal-to-Noise Ratio	100dB
Dynamic Range	96dB
Channel Separation	96dB
Auxiliary Input Level	1.4V (Maximum)
Product Dimensions and Weight	
Width	9-13/16"
Height	3-1/8"
Depth	7-13/16"
Weight	5.1 lb

MD Receiver Features and Specifications

FEATURES	KMD-70R
Mini Disc Features	
10-Second Digital Anti-Skip	Yes
Integrated Quad 1-Bit Digital-to-Analog Converter	Yes
8-Times Oversampling Digital Filter	Yes
Precision Digital Timing (DPAC)	Yes
Digital Optimum Servo Control	Yes
Kenwood Mini Disc Transport Mechanism	Yes
Repeat	Track, Disc
Random Play	Yes
Changer Control Features	
Changer Control	2 (with KCA-200 or Compatible Changer)
Direct Track and Disc Access (with Remote)	Yes
Disc Naming	with Compatible Changer
Simplified Alphanumeric	
Disc Naming (with Remote)	Yes
Disc Name Preset Play (with Remote)	Yes
CD Text	8 Characters
Random Play	Disc, Magazine
Repeat Play	Track, Disc
Tuner Features	
Kenwood CR-2 Advanced Tuner	Yes
High-Speed Multipath Control (CRSC) with ANRC	Yes
Station Naming	24 Stations
Simplified Alphanumeric	
Station Naming (with Remote)	Yes
Station Name Preset Play	Yes
Station Presets	24 (18 FM, 6 AM)
Preset Seek Tuning	Yes
Direct Access Tuning (with Remote)	Yes
Automatic Memory Entry	Yes
General Features	
System E's Crossover System	Yes
Selectable Front/Non-Fading Preout	Yes
Front and Rear RCA Preouts	Yes
Electronic Audio Control (Volume, Balance, Fader, Bass, Treble)	Yes
Attenuator with Smooth Volume Return	-20dB
Source Tone Memory	Yes
Preout/Power Fader	Yes
Flip-Down Removable Faceplate with Carrying Case	Yes
LCD Display	3-Color
Disabled System Indicator	Yes
Touch-Tone Keys	Defeatable
Iso-Mount Capability for Japanese Vehicles	Yes
Remote Control	Yes

SPECIFICATIONS	KMD-70R
Performance Specifications	
Power Ratings	
Maximum Power	40 Watts x 4
Full Bandwidth Power (<1% THD)	22 Watts x 4
MD Specifications	
Digital Anti-Skip	10-Second
Digital-to-Analog Converter	1-Bit
Digital Filter	8-Times Oversampling
Frequency Response	20Hz - 20kHz (+/- 2dB)
Total Harmonic Distortion	0.5% (1kHz)
Signal-to-Noise Ratio	80dB (1kHz)
Dynamic Range	80dB
Channel Separation	50dB
Tuner Specifications	
FM Useable Sensitivity (0.8µV/75 ohms, 30dB S/N)	9.3dBf
FM Quieting Sensitivity (1.6µV/75 ohms, 50dB S/N)	15.2dBf
FM Selectivity (+/- 400kHz)	>/= 80dB
FM Signal-to-Noise Ratio (Mono)	70dB
FM Stereo Separation (1kHz)	40dB
AM Useable Sensitivity (25µV, 20dB S/N)	28dBµ
Audio Specifications	
Preamp Output Level	1.8V
Preamp Output Impedance	</= 600 ohms
Tone Control Characteristics	+/- 10dB at 100Hz (Bass), +/- 10dB at 10kHz (Treble)

Product Dimensions and Weight

Width	7-3/16"
Height	2-1/16"
Depth	6-1/16"
Weight	3.3 lb

Mobile Video Features

FEATURES	LZ-700W
Video Features	
3 Selectable Screen Viewing Modes: Normal, Full, and Zoom	Yes
Non-Glare, Smudge-Resistant Screen	Yes
High Resolution (336,960 Pixels)	Yes
Widescreen (16:9) Aspect Ratio	Yes
7" Wide LCD Screen	Yes
General Features	
Optical Touch-Screen Control	Yes
Built-In TV Tuner	VHF Channels 2 - 13, UHF Channels 14 - 99
Built-In Speaker with Volume Control	Yes
4-Channel Diversity Antenna Circuit	Yes
2 Audio/Video Inputs	Yes
1 Audio/Video Output	Yes
RGB Input	Yes
8 Preset TV Stations with Auto Memory	Yes
Auto/Manual Dimmer	Yes
Connects to KDC-CPS81 Auxiliary Input	Yes

Power Amplifier Features and Specifications

FEATURES	KAC-PS400M	KAC-PS300T	KAC-PS200T	KAC-PS500F
Power Supply Features				
Power MOSFET Switching Power Supply	Yes	Yes	Yes	Yes
Dual Power Supply	Yes	Yes		Yes
Copper Bus Bars	19	17	7	21
Copper-Shielded EE Core Transformer	2	2	Yes	2
Fast Recovery Diodes	Yes	Yes	Yes	Yes
Large Secondary Capacitor Stage	Yes	Yes	Yes	Yes
Large Toroidal Noise Suppression Filter	Yes	Yes	Yes	Yes
Glass Epoxy Printed Circuit Board	Yes	Yes	Yes	Yes
2 Brushless Cooling Fans	Yes	Yes		Yes
Power Input Terminals	Gold-Plated, Large Screw-Type	Gold-Plated, Large Screw-Type	Gold-Plated, Large Screw-Type	Gold-Plated, Large Screw-Type
Power Indicator	3-Color: Power, Protection, Low Voltage	2-Color: Power, Protection	2-Color: Power, Protection Low Voltage	3-Color: Power, Protection, Low Voltage
2-Ohm Stable	Yes	Yes	Yes	Yes
Audio Features				
Number of Channels	1	1, 2	1, 2	2, 3, 4
Sigma Servo I				Stereo Mode
Sigma Servo II	Yes			Bridged Mode
Sigma Drive		Yes	Yes	
K-STAT Discrete Audio Amplifier				Yes
LAPT Audio Amplifier	Yes			
Selectable Balanced Line Input	Yes	Yes	Yes	
Stereo, Mono or Tri-Mode Operation		Yes	Yes	Yes
Input Selector				AB/A (Common)
Variable Low-Pass Electronic Crossover	50 - 200 Hz, 24 dB per Octave	50Hz - 200Hz, 18dB per Octave	50Hz - 200Hz, 18dB per Octave	50 - 200 Hz, 24 dB per Octave
Variable High-Pass Electronic Crossover		50Hz - 200Hz, 12dB per Octave	50Hz - 200Hz, 12dB per Octave	50Hz - 200Hz, 12dB per Octave
Variable Band Reject Filter	40Hz - 200Hz			
Selectable Infrasonic Filter	Off/15/20/25/30Hz, 24dB per Octave	Off/25Hz, 18dB per Octave	Off/25Hz, 18dB per Octave	Off/15/25Hz, 24dB per Octave
Balanced Isolation Circuit	Yes	Yes	Yes	
Ground Isolation Circuit				Yes
Glass Epoxy Printed Circuit Board	Yes	Yes	Yes	Yes
Parallel RCA Inputs/Outputs	Gold-Plated	Gold-Plated	Gold-Plated	
RCA Audio Inputs				Gold-Plated
RCA Line Outputs				Gold-Plated
Speaker Connectors	Gold-Plated, Large Screw-Type	Gold-Plated, Screw-Type	Gold-Plated, Screw-Type	Gold-Plated, Screw-Type
Sigma Servo Terminals	Gold-Plated, Screw-Type			Gold-Plated, Screw-Type
Quiet Turn-On	Yes	Yes	Yes	Yes
Speaker Relay Protection	Yes	Yes	Yes	Yes

SPECIFICATIONS	KAC-PS400M	KAC-PS300T	KAC-PS200T	KAC-PS500F
Power Ratings				
Power Output at 4 Ohms, at 12V	200 Watts x 1 (less than 0.05% THD, 1kHz)	75 Watts x 2 (less than 0.05% THD, 20Hz - 20kHz)	50 Watts x 2 (less than 0.05% THD, 20Hz - 20kHz)	50 Watts x 4 (less than 0.05% THD, 20Hz - 20kHz)
Power Output at 4 Ohms, at 14.4V	300 Watts x 1 (less than 0.05% THD, 20Hz - 20kHz)	100 Watts x 2 (less than 0.05% THD, 20Hz - 20kHz)	75 Watts x 2 (less than 0.05% THD, 20Hz - 20kHz)	75 Watts x 4 (less than 0.05% THD, 20Hz - 20kHz)
Power Output at 2 Ohms, at 12V	400 Watts x 1 (less than 0.5% THD, 1kHz)	150 Watts x 2 (less than 0.5% THD, 1kHz)	100 Watts x 2 (less than 0.5% THD, 1kHz)	100 Watts x 4 (less than 0.5% THD, 1kHz)
Power Output at 2 Ohms, at 14.4V	600 Watts x 1 (less than 0.5% THD, 1kHz)	200 Watts x 2 (less than 0.5% THD, 1kHz)	150 Watts x 2 (less than 0.5% THD, 1kHz)	150 Watts x 4 (less than 0.5% THD, 1kHz)
Bridged Power Output at 12V		300 Watts x 1 (less than 0.5% THD, 1kHz)	200 Watts x 1 (less than 0.5% THD, 1kHz)	200 Watts x 2 (less than 0.5% THD, 1kHz)
Bridged Power Output at 14.4V		400 Watts x 1 (less than 0.5% THD, 1kHz)	300 Watts x 1 (less than 0.5% THD, 1kHz)	300 Watts x 2 (less than 0.5% THD, 1kHz)
Maximum Output Power	1200 Watts x 1	800 Watts x 1	600 Watts x 1	600 Watts x 2
Audio Performance				
Frequency Response	5Hz - 50kHz (+0dB, -1dB)	5Hz - 50kHz (+0dB, -1dB)	5Hz - 50kHz (+0dB, -1dB)	5Hz - 50kHz (+0dB, -1dB)
Signal-to-Noise Ratio	105dB (1kHz)	105dB (1kHz)	105dB (1kHz)	110dB
Damping Factor	9,900 (with Sigma Servo Connection)	200	200	1,000 (with Sigma Servo Connection)
Input Sensitivity	0.2V - 5V	0.2V - 5V	0.2V - 5V	0.2V - 5V
Input Impedance	10k Ohms	10k Ohms	10k Ohms	10k Ohms
Low-Pass Filter Frequency	50Hz - 200Hz, 24dB per Octave (Variable)	50Hz - 200Hz, 18dB per Octave (Variable)	50Hz - 200Hz, 18dB per Octave (Variable)	50Hz - 200Hz, 24dB per Octave (Variable)
High-Pass Filter Frequency		50Hz - 200Hz, 12dB per Octave (Variable)	50Hz - 200Hz, 12dB per Octave (Variable)	50Hz - 200Hz, 12dB per Octave (Variable)
Band-Reject Filter Frequency	40Hz - 200Hz (Variable)			
Infrasonic Filter Frequency	Off/15/20/25/30Hz, 24dB per Octave (Selectable)	Off/25Hz, 18dB per Octave	Off/25Hz, 18dB per Octave	Off/15Hz/25Hz, 24dB per Octave (Selectable)
Product Dimensions and Weight				
Width	10-11/16"	10-11/16"	10-11/16"	10-11/16"
Height	2-5/16"	2-5/16"	2-5/16"	2-5/16"
Depth	15-3/4"	11-13/16"	10-5/8"	17-11/16"
Weight	14.3 lb	10.8 lb	9.4 lb	15.4 lb

Speaker Features

FEATURES	6" SPEAKERS		5" SPEAKERS		4" SPEAKERS		7 X 10" SPEAKERS	6" X 9" SPEAKERS	5" X 7" SPEAKERS	4" X 6" SPEAKERS
	KFC-HQR16	KFC-HQ165	KFC-HQR13	KFC-HQ135	KFC-HQR10	KFC-HQ105	KFC-HQ715	KFC-HQ695	KFC-HQ575	KFC-HQ465
General Features										
Pearl Mica Injection-Molded Polypropylene Cone		6"		5"		4"	7" x 10"	6" x 9"	5" x 7"	4" x 6"
Injection-Molded Polypropylene Cone	6"		5"		4"					
Dual Neodymium Magnets	Yes		Yes		Yes					
Butyl Rubber Surround	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TIL Voice Coil Bobbin		Yes		Yes		Yes				
Heat-Resistant Voice Coil and Polyamide Damper	Yes	Yes	Yes	Yes		Yes			Yes	Yes
Heat-Resistant Polyamide Voice Coil Bobbin					Yes					Yes
PPTA Film Balanced Dome Midrange	1-9/16" Angled									
PEI Film Cone Midrange							2-3/4"	2-3/4"		
PPTA Film Balanced Dome Tweeter	1" Angled	1-9/16"	1-3/16" Angled	1-3/16"	1" Angled	1"	1"	1"		
Polyamide Balanced Dome Tweeter									1-9/16"	1"
Bridged Tweeter and/or Midrange Support	Yes		Yes		Yes					
Swivel Tweeter Mount		+/- 15 degrees		+/- 15 degrees		+/- 15 degrees			+/- 15 degrees	
Multiple Component Crossover Network							Yes	Yes		
Bi-Wire Connections		Yes		Yes		Yes				
OFC Speaker Wire	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Magnet Weight	1.16 oz x 2	11.9 oz	0.82 oz x 2	8.2 oz	0.29 oz x 2	6.4 oz	18 oz	18 oz	8.3 oz	5.6 oz
Power Handling	150 Watts	150 Watts	100 Watts	100 Watts	70 Watts	70 Watts	280 Watts	260 Watts	120 Watts	60 Watts
Sensitivity	92dB	92dB	91dB	91dB	90dB	90dB	93dB	93dB	92dB	92dB
Impedance	4 ohms	4 ohms	4 ohms	4 ohms	4 ohms	4 ohms	4 ohms	4 Ohms	4 Ohms	4 Ohms
Frequency Response	35Hz - 30kHz	35Hz - 30kHz	40Hz - 30kHz	40Hz - 30kHz	45 Hz - 30 kHz	45 Hz - 30 kHz	25 Hz - 30 kHz	25Hz - 27kHz	35Hz - 30kHz	40Hz - 30kHz

Component Packages Features

FEATURES	KFC-HQR62	KFC-HQR52	KFC-HQR42
Midrange Features			
Pearl Mica Injection-Molded Polypropylene Cone	6-1/2"	5-1/4"	4"
Dual Neodymium Magnets	0.82 oz x 2	0.82 oz x 2	0.29 oz x 2
Butyl Rubber Surround	Yes	Yes	Yes
TIL Voice Coil Bobbin	Yes	Yes	Yes
Through and Low-Cut Input Connections	Yes	Yes	Yes
Impedance	4 Ohms	4 Ohms	4 Ohms
Tweeter Features			
Ultra-Lightweight Polyamide Soft Dome	1"	1"	1"
Neodymium Magnet	0.21 oz	0.21 oz	0.21 oz
Flexible 2-Way Mounting (Surface/Flush-Angle)	Yes	Yes	Yes
Swivel Tweeter Mount	+/- 30 degrees	+/- 30 degrees	+/- 30 degrees
Impedance	4 Ohms	4 Ohms	4 Ohms
System Features			
2-Way Component Passive Crossover	Yes	Yes	Yes
Crossover Midrange Connections	Through/High-Cut	Through/High-Cut	Through/High-Cut
Crossover Tweeter Connections	0dB/ - 2dB/ - 4dB	0dB/ - 2dB/ - 4dB	0dB/ - 2dB/ - 4dB
Crossover Speaker Terminals	Gold-Plated, Screw-Type	Gold-Plated, Screw-Type	Gold-Plated, Screw-Type
Power Handling	150 Watts	150 Watts	150 Watts
Sensitivity	90dB	90dB	90dB

Woofer Features and Specifications

FEATURES	KFC-HQW301	KFC-HQW251		
General Features				
Non-Pressed Pulp Cone	12"	10"		
Meltoam Surround	Yes	Yes		
Concave Dust Cap	Yes	Yes		
Heat-Resistant Polyamide Damper	Double	Double		
Vented Voice Coil	3-1/8"	2-9/16"		
Diecast Aluminum Frame	Yes	Yes		
24-Fin Heat Sink	Yes	Yes		
Strontium Ferrite Magnet	92 oz, 2-Layer	63.5 oz, 2-Layer		
Through-Frame Wire Holes for Iso-Vent Applications	Yes	Yes		
Gold-Plated Binding Post Terminals	Yes	Yes		
Power Handling	1,000 Watts	600 Watts		
Sensitivity	91dB	90dB		
Impedance	KFC-HQW301: 4 ohms, KFC-HQW-3018: 8 ohms	KFC-HQW-251: 4 ohms, KFC-HQW2518: 8 ohms		
Frequency Response	18Hz - 2kHz	18Hz - 2kHz		
Speaker Displacement (cu ft)	0.202	0.147		
SPECIFICATIONS				
Thiele-Small Parameters				
Nominal Impedance (Z)	4 ohms	8 ohms	4 ohms	8 ohms
DC Resistance (Re)	3.25 ohms	6.49 ohms	3.8 ohms	6.54 ohms
Resonant Frequency (Fso)	29Hz	30Hz	31Hz	32Hz
Mechanical Q Factor (Qms)	2.539	2.425	2.792	3.139
Electrical Q Factor (Qes)	0.397	0.516	0.545	0.629
Total Q Factor (Qts)	0.343	0.425	0.456	0.524
Volume Acoustic Compliance (Vas)	2.61 cu ft. / 73.93 liter	2.3 cu. ft. / 65.14 liter	1.48 cu. ft. / 41.91 liter	1.3 cu. ft. / 36.82 liter
Moving Mass (Mms)	2.62 oz	2.58 oz	2.22 oz	2.21 oz
Voice Coil Diameter (d)	3.18"	3.18"	2.55"	2.55"
Force Factor (Bl)	12.126	15.465	9.614	12.502
Peak Excursion (Xmax)	0.24"	0.24"	0.24"	0.26"
Product Dimensions and Weight				
Width	12-7/16"	12-7/16"	11-1/4"	11-1/4"
Height	12-7/16"	12-7/16"	11-1/4"	11-1/4"
Depth	6-1/2"	6-1/2"	6"	6"
Weight	19.4 lb	19.4 lb	12.1 lb	12.1 lb

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