

ZILDJIAN WHITE PAPER NO. 1

CRASH CYMBALS

Until the late forties/early fifties, there was no such thing as a "Crash" cymbal per se. Early jazz cymbals were lighter and smaller (13" to 16" and either Thin or Medium Thin) and they actually doubled as both Crash and Ride cymbals. Seeking to come to the forefront and cut through large brass sections more effectively, Big Band drummers like Gene Krupa and Don Lamond increased the size of their cymbals up to 18" for more power and projection.

The advent of Bebop and a new vanguard of drummers led by Kenny Clarke and Max Roach shifted the timekeeping emphasis from the bass drum and Hi Hat (Jo Jones style) to the "Top" or "Ride" cymbal. Avedis Zildjian, founder of the modern Zildjian company whose collaborations with leading drummers had produced cymbal designs like the Hi Hat, quickly responded to the needs of the music with heavier and larger top cymbals called "Bop-Rides" and "Pings."

In a sense, the creation of the Ride cymbal freed up the other cymbals in the set-up to be used for various effects and to punctuate the music with different accents. Later to be grouped under the general category of Crash cymbals, these came in many varieties and differed from the heavier Ride cymbals in several ways.

Crash cymbals have larger bells or cups for a fuller sound and more

overtone and are usually smaller (14" to 20") and lighter (Thin, Medium Thin) than Rides. Not recommended for strict timekeeping chores because of overtone build-up (although some drummers keep time by playing softly or on the bell of the Crash), Crash cymbals can be used for a variety of effects and accenting sounds ranging from loud explosive sounds to softer and more subtle punctuations of the beat. Besides a full complement of different Crash cymbal sounds Zildjian has also developed more exotic versions of the Crash cymbal including the "Splash" and panga-sounding "China" types.

This search for more unique Crash sounds and textures initially culminated in the Jazz Rock movement of the sixties and seventies. Drummers searching for a penetrating and high-pitched, cymbal sound to blend in with brass, reeds and synthesizers first found the answer in the same 16" and 18" A. Zildjian Medium Thin Crash cymbals first used by Buddy Rich, Max Roach and Louie Bellson. But experimentation was the keynote for this era and pace-setting drummers like Ginger Baker, who introduced a double-decker combination of a Pang and Crash, and Billy Cobham, who added A. Zildjian Gongs and Swish cymbals to his set-up, paved the way for others.

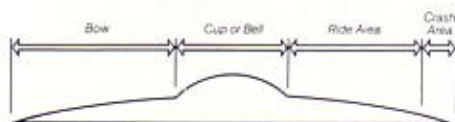
Nowadays, the increased demand for raw power and brilliant, aggressive sounds from cymbals to project through high-powered amplification has led Zildjian in new directions. Starting off with the exceptionally powerful Rock Crash several years ago, the company has gone on to develop the fast and brilliant non-cast Amir Crash and the loud, cutting non-cast Impulse Crash for today's recording and live concert applications.

In addition to a multi-faceted variety of Zildjian Crashes, the company also produces a Crash Ride cymbal for the utmost flexibility in any playing situation as well as Paper Thin Crashes and smaller Splash cymbals for very fast, short and bright crashes that cut out immediately.

More recently, the Zildjian Sound Lab has produced a selection of new Crash cymbals which offer the enormous variety of sounds and textures required by modern drummers who play many different styles of acoustic and electronic music. Tony Williams, an exceptionally gifted innovator on the drums for nearly two decades, uses the new dark-sounding K. Crashes to create rich, multi-textured "washes" of sound. Vinnie Colaiuta, another young drummer with a highly distinctive style, uses the new A. Zildjian Splash and Paper Thin Crash cymbals for the exotic off-time accents that punctuate his music.

Zildjian®
SOUND LAB

Anatomy Of A Crash Cymbal



Bell (Cup Size): The bell or raised section in the center of the cymbal largely determines the amount of ring or overtones projected by the cymbal. Larger cups result in more overtones, a fuller body sound and a faster initial response (these are more commonly found on Crash cymbals). Smaller cups will produce a tighter overall sound with less overtones. No cup at all will eliminate approximately 90% of a cymbal's ringing or sustain qualities. Lightweight Ride cymbals with big cups can also be used as Crash and Crash/Ride cymbals.

Bow (Taper): The bow or curvature of the Crash cymbal from the bell to the edge determines the pitch of the cymbal. A flatter construction through the bow area of the cymbal will produce sounds lower and darker in pitch. Crashes with a higher curvature will be higher in pitch and have more definition.

Weight: The weight of a Crash cymbal affects both the pitch and response of that cymbal. Thin through Medium weight Crash cymbals react very quickly but do not have long sustaining qualities. Thin cymbals have a low to medium pitch and Medium cymbals have a medium to high pitch. Heavy cymbals react more slowly but sustain longer and have a very high pitch.

Size: The amount of volume projected by a cymbal is mostly determined by its size. Smaller cymbals generally offer less projection while larger cymbals can produce more volume. Cymbal size is also a relative factor in terms of its response: Small (and lightweight) cymbals react very quickly to stick attack and also decay faster. Because they need more vibrations to peak, larger cymbals react more slowly.

Crash Cymbal Sound Criteria

Pitch: A built-in full tonal scale insures that every Zildjian cymbal is always in tune. The dominating tone element within this scale actually determines the pitch of the cymbal, ie. although a high-pitched cymbal possesses the full tonal scale along with its harmonic complements, the highest tone will dominate the harmonic spectrum. The "ideal" of a high-pitched, brilliant-sounding Crash can be misleading. Most Crashes aren't actually as high-pitched as they sound because they react so quickly they are deceiving. You must compare a Thin Crash to a Medium Crash to experience the difference. Drummers need a full, all-around sound from the Crash for maximum effectiveness.

Response: Based on the thickness or size of the Crash, the response of the cymbal or how quickly it reacts to the stick attack is a vital issue when crashing. The smallest and thinnest cymbal obviously reaches full vibration the fastest. Increasing the size and weight of the cymbal will mean a slower response but more power and volume. This basic trade-off, along with a drummer's particular "feel" for the Crash and choice of tonal colors, will help determine exactly what Crashes to include in a cymbal set-up.

Sustaining Power: Another important criterion for Crashes, the cymbal's sustaining power or ability to sound after the initial stroke, is largely determined by how large and how "alive"

the drummer wants the cymbal to be. Larger Crashes will generate a roaring overtone sound that sustains longer while smaller Crashes will decay or cut off more quickly for short, expressive punctuations and accents.

Actual Power: The power, volume and tone of a cymbal are a result of several elements working in tandem: its size and shape, the metals that form its alloy, the responsiveness of the processed alloy and the highly technical lathing process which shapes the metal. As a general rule, the larger the cymbal, the more power and volume it will project. Overplaying a small cymbal to get more volume out of it will invariably produce noise and not tone or volume, and could also damage the cymbal.

Harmonic Overtones: Instruments like the guitar generate a more obvious fundamental note whereas the cymbal produces a complex series of harmonic overtones or "harmonics." Zildjian cast cymbals produce a dominant pitch plus a full series of harmonics which allow them to be consistently in tune with other instruments in the band. A Zildjian cymbal projects "in tune" harmonics because of its sympathetic vibrations and multiple pitch. Newer Zildjian non-cast Amir and Impulse cymbals produce a more focused blend of frequencies and accompanying overtones.

How To Choose A Crash Cymbal

When choosing a Crash cymbal, you should first decide exactly what the cymbal will be used for: loud, explosive crashes; softer, more exotic crashes; crashing and riding; fast

"choke" effects; mallet playing or special effects or other combinations of these.

The second consideration involves the type of music (and overall volume

Zildjian Crotales

(Antique Cymbals)

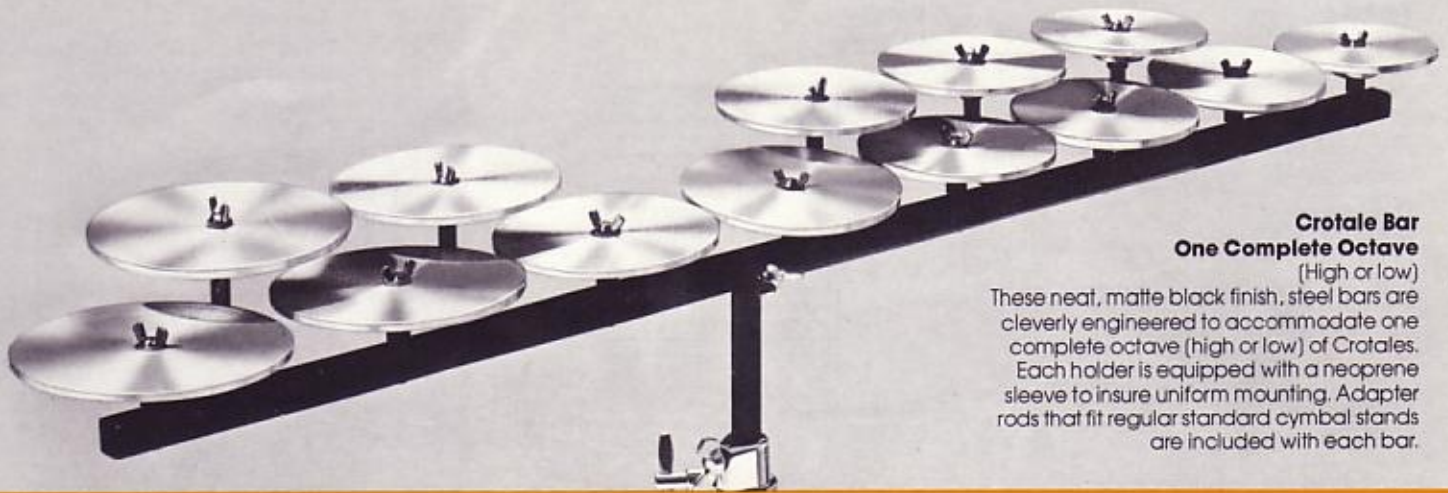
Unlike normal cymbals, Avedis Zildjian Crotales have very definite chromatic pitch and produce clear, unblemished notes when struck singly with small mallets or when pairs are struck together.

They are used primarily to interpret special sounds in various classical works and are also used in percussion

ensembles for special effects. Crotales have a range of two complete octaves from middle C on the piano up two octaves. They are tuned electronically A-442 with other tunings available on special order. When ordering Crotales, please specify notes singly, in pairs or entire octave, high or low.



Crotale Pair



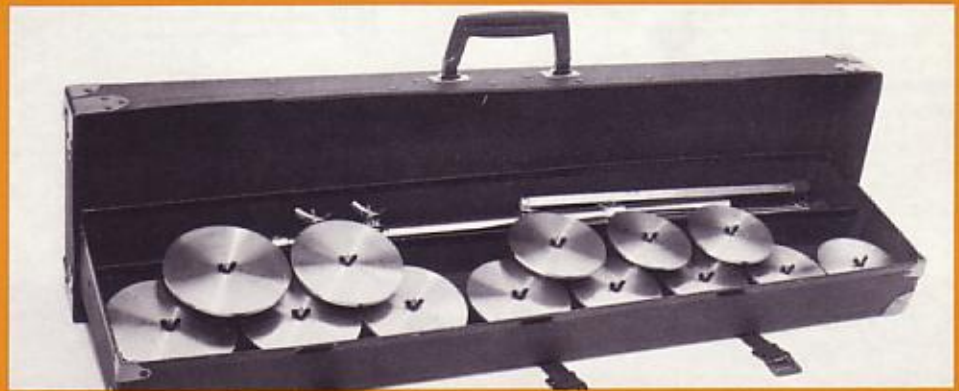
Crotale Bar
One Complete Octave
(High or low)

These neat, matte black finish, steel bars are cleverly engineered to accommodate one complete octave (high or low) of Crotales. Each holder is equipped with a neoprene sleeve to insure uniform mounting. Adapter rods that fit regular standard cymbal stands are included with each bar.



Single Crotale Holder

Handy chrome finish Crotale holder can be quickly clamped to a regular cymbal stand at almost any height or position.



Crotale Carrying Case

This sturdily made fiberboard case is especially designed to provide a snug fit for one 13 note octave of Crotales (high or low) mounted on a

bar. Space is also provided for a collapsible stand plus mallets and/or beaters. Equipped with strong luggage handle and straps.

Zildjian®

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Avedis Zildjian Company, Cymbal Makers Since 1623. PO Box 198, Accord, MA 02018

Zildjian Crotales

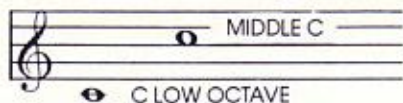
(Antique Cymbals)

Composers write notes for Crotales in the staff, so that the player may easily identify the notations, however, similar

to the glockenspiel, they sound two octaves higher than written or scored.

Staff Notation

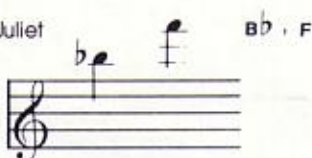
 C HIGH OCTAVE



Orchestral Reference

Berlioz—

Romeo & Juliet



Ravel—

La Valse



Debussy—

Afternoon Of A Fawn



Rossini—

Barber Of Seville



Stravinsky—

Les Noces



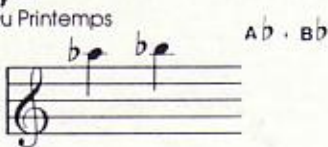
Massenet—

Salome



Stravinsky—

Le Sacre Du Printemps



Kraft—

Concerto For Percussion



Crotale History

CROTALES (from the Greek, meaning vinegar cups) are among the earliest musical instruments ever made. They descended from finger cymbals which actually were the original Crotales.

In the Bronze Age, vinegar—a highly prized spice—was kept in bronze containers shaped like a large thimble. When pre-historic man found that bronze vinegar cups sounded exotic when played together, they attached handles, as in today's finger cymbals. More exciting shapes and forms were then made during early Egyptian and Sumerian history until the present shape of a Crotale evolved.

It is our assumption that the only instruments older than these are two sticks or bones hit together, instruments still used in minstrel and country music.

The chronological order evolved about as follows:

- 1) Finger cymbals—descending from vinegar cups
- 2) Crotales—a more sophisticated finger cymbal with a definite pitch
- 3) Cymbals—as evolved in ultimate use today
- 4) Gongs—the most recent of this category of percussion instruments

All of these instruments are still made by the Avedis Zildjian Company and have been a part of our production since 1623.

Playing Crotales

By Sam Denov, Cymbalist,
Chicago Symphony Orchestra.

Crotales, also called Antique Cymbals, produce tones which are absolutely unique. Although made of the same basic alloy used in conventional cymbals, a Crotale produces a sound of definite pitch. This would be totally unacceptable for a conventional cymbal yet is beautiful in a Crotale.

While Crotales may be played in many ways the most common method is to play a single Crotale with a mallet or other type beater.

This is accomplished by grasping the Crotale's leather thong firmly between the thumb and middle portion of the index finger so that the flat underside of the instrument is facing up. The knob (or cup) should rest on the tip of the thumb and side of the finger. It is stuck close to the edge by the mallet in the other hand. If the note to be played is soft, it will be helpful to shorten the grip on the mallet.

Crotales may also be played in pairs of the same or different pitches. In this case, both instruments are held as described earlier, one in each hand. The edge of one Crotale is struck against the flat side of the other to produce its tone. For a softer effect the edge of one may be rubbed or scraped across the flat side of the other. Crotales can be muffled by placing the free fingers of the hand holding the instrument on its edge.

A little experimentation, particularly with different beaters, will reveal an immense range of some of the most beautiful sounds known to man.

Crotale Bars

In the notations by Sam Denov no mention has been made of Crotale Bars, a recent development of Avedis Zildjian. This is in answer to requests from foremost percussionists seeking to expand and embellish tonal range. The result is a bar, introduced by Avedis Zildjian, on which one complete chromatic octave of Crotales can be mounted in sequence. It is described in detail on the other side.

K. ZILDJIAN CYMBALS



With their unique blend of overtones and dark, dry tonal character, legendary K. Zildjian Cymbals are favored by many drummers looking for a wider range of tonal colors or textures in their set-up. The recently expanded K. Zildjian line now includes a broader repertoire of warm, reverberant sounds with characteristic K. definition and clarity produced by new Splash, Flat Ride, Heavy Ride and odd-sized Dark Crash and China Boy Cymbals. Still the embodiment of hand crafted traditions established by generations of Zildjians, the K. Zildjian line has benefited from the design technology of the Zildjian Sound Lab to offer an even wider array of new and exotic sounds that blend perfectly with any kind of music from Rock to Funk, Fusion and Jazz.

K

Zildjian®

K. Zildjian Availability Chart

Model	Sound	Weight	Sizes	Part No.
Ride Cymbals				
Jazz Ride	A dry, shimmering sound with controlled overtones for today's rock, funk and jazz colorations.	Medium Thin	18" 20" 22"	0801 0803 0805
Crash Ride	Excellent ride definition. Dry, controlled crashes.	Medium Thin	18" 20" 22"	0808 0810 0812
Ride	Low-pitched. Clear stick definition. Low overtones, medium spread.	Medium	18" 20" 22"	0815 0817 0819
Heavy Ride	Low-pitched. Clear ping and tight stick definition.	Heavy	18" 20" 22"	0845 0846 0847
Flat Top Ride	Tight and dry. Low pitched ride. No overtones. No spread.	Medium Thin	18" 20" 22"	0840 0841 0842
Hi Hat Cymbals				
Hi Hats	Deep and solid chip sound. Low-pitched. Fast response. Deep, solid chip sound. Full low-pitched response. Deep, solid chip sound. Full low-pitched response.	Medium Top/Med. Heavy Bottom	13" - Pair 13" - Top Only 13" - Bottom Only 14" - Pair 14" - Top Only 14" - Bottom Only 15" - Pair 15" - Top Only 15" - Bottom Only	0820 0821 0822 0823 0824 0825 0826 0827 0828
Crash Cymbals				
Splash	Quick, dark crash. Moderate sustain.	Paper Thin	8" 10" 12"	0857 0858 0859
Dark Crash	Dark, low-pitched crash. Fast response. Dark, low-pitched crash. Moderate sustain.	Thin Medium Thin	15" 16" 17" 18" 20"	0830 0834 0835 0836 0838
Special Effects Cymbals				
China Boy	Dark, exotic, mellow sound for special effects.	Thin	17" 19"	0883 0885
Orchestra Cymbals				
Suspended Orchestra	Sonorous sounding, producing a full, deep, rich sound. Warm, low overtones.	Medium Thin	18" 20"	0860 0862
Orchestra	Strong, dark, full shimmering responses. Good sustain.	Heavy	18" - Pair 18" - One Only 20" - Pair 20" - One Only 22" - Pair 22" - One Only	0870 0871 0874 0875 0878 0879

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Zildjian
The only serious choice.

level) to be played: heavy metal, rock 'n' roll, funk, country, latin, acoustic music, Big Band, Bebop or jazz rock.

Finally, the overall size of the band (especially brass and synthesizers) plays an important role in determining the overall sizes of your Crash

cymbals.

Bring the sticks you normally play with to test a new Crash. Relying on whatever sticks happen to be available at your local music store or percussion shop can give a totally misleading picture of the cymbal.

How To Listen To A Crash Cymbal

Even though you play your cymbals for yourself and your band, it's important to remember that an audience will be out there listening to those cymbals. For that reason, it's helpful to bring another drummer or musician whose ears you trust to stand back at varying distances from the cymbal while you play it to hear how it sounds and projects "out front."

If possible, bring other cymbals from your set-up to play them side by side with the new cymbal to see how well it either contrasts with or complements the other cymbal sounds.

Understanding how a cymbal vibrates will help guide you when listening to the cymbal. When a cymbal is struck, the vibrations roll into the center of the cup, then the cup receives the vibrations and throws them back to the edge. The edge of the cymbal catches them and sends them back to the cup again and so forth. The sound wave becomes fainter and fainter as the vibrations lose sustaining power. Strike a cymbal on its bow and you'll see how the edge

vibrates in an up and down arc with the arc getting smaller as the vibrations become fainter.

Get close to the cymbal to hear if it has a clear primary tone. Then listen to whether the harmonic overtones are coming out of the cymbal evenly. The amount and duration of harmonic overtones are important factors when evaluating a Crash cymbal. The bell should also have a clear primary tone without excessive overtones for clearer detailing when accenting on the bell.

Try a variety of crashing techniques such as glancing, popping or slashing the cymbal to confirm that it can produce a variety of sounds and textures for different playing situations.

Listen for the sound of the initial stroke, how the cymbal sound "rises" with the production of overtones and how quickly or slowly the cymbal decays. Range from the softest touch to the hardest stroke while remembering that you never hit a cymbal hard straight dead center or on the edge with the butt end of a stick without the risk of cracking it.

Zildjian Crash Cymbals

Medium Crash: A powerful, high-pitched cymbal with a full-bodied sound. Recommended for larger groups and higher volume situations where loud crashes are desired.

Medium Thin Crash: One of Zildjian's most popular cymbals, the Medium Thin Crash provides excellent pitch flexibility, a clear high end response and longer sustaining power. An excellent "alternate" Crash for pitch variety in the cymbal set-up.

Thin Crash: The "basic" Crash cymbal. Produces a fast and brilliant high end sound with extra "cut" for quick accents.

Paper Thin Crash: A newer addition to the Zildjian Crash line, the Paper Thin Crash cymbal responds very quickly and yields a crisp, clean and sensitive sound which cuts out quickly. Ideal for studio drummers, orchestra musicians and percussionists.

Rock Crash: Specially designed for hard rock and heavy metal, the Zildjian Rock Crash is a heavy cymbal with a special taper and a large cup. This produces an incredibly strong and powerful sound that cuts through any amplified music.

Splash: The smallest, thinnest Crash cymbal produced by Zildjian, the Splash produces a very fast, short crash sound that cuts off and stops

immediately. Excellent for special effects.

Crash Ride: A unique double-duty cymbal that's heavy enough to sustain a ride beat but light enough to crash. Can be used with a heavier Ride cymbal or other Crashes for more tone colors.

K. Dark Crash: The K. Zildjian Dark Crash produces a dark, low-pitched crash sound with a dry tonal character. Blends in exceptionally well with other Zildjian cymbals for extra tonal variety.

K. Splash: A new addition to the legendary K. Zildjian line, the K. Splash yields a quick, dark crash sound with moderate sustain. Excellent for accenting with a different tonal character.

Amir Crash: The Amir Crash offers a bright, high-pitched tone which rises quickly and decays. Contoured overtones make it ideal for recording and it blends well with different set-ups.

Impulse Crash: With a loud, explosive attack and a raw, metallic tone color, the Impulse Crash cymbal lends itself to any high-powered musical situation. Delivering exceptional presence and projection, this cymbal has a focused overtone threshold that allows repeated crashes without excessive build-up.

Zildjian Crash Cymbal Availability Chart

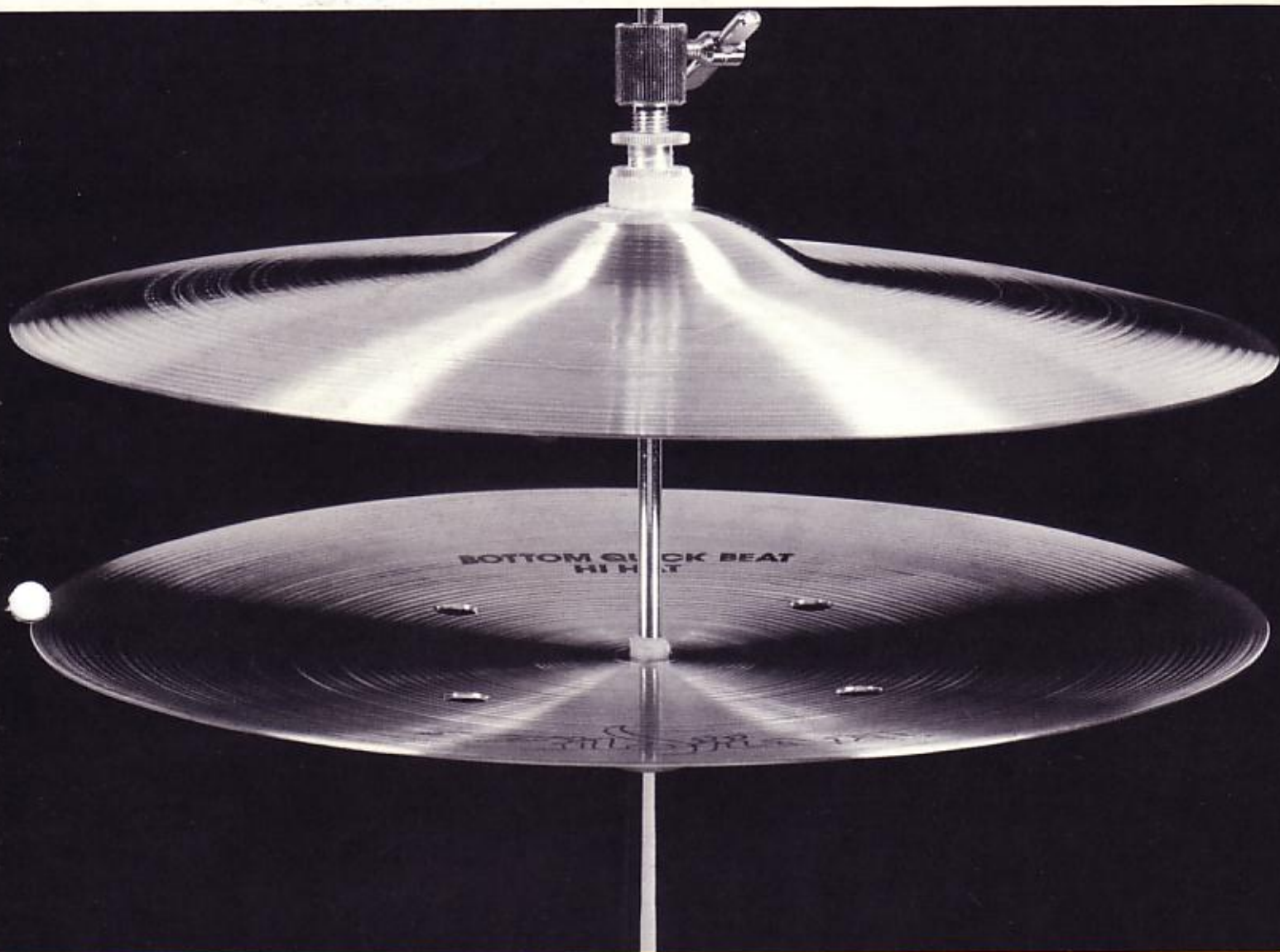
Model	Sound	Weight	Sizes	Part No.
Zildjian®				
Splash	Quick, short crash. Cuts off and stops.	Paper Thin	8" 10" 12"	0210 0211 0212
Paper Thin Crash	Clear and crisp. Exceptionally fast and sensitive response.	Paper Thin	14" 15" 16" 17"	0214 0215 0216 0217
Thin Crash	Fast, bright, lively. High-pitched.	Thin	13" 14" 15" 16" 17" 18" 19" 20"	0220 0221 0222 0223 0224 0225 0226 0227
Medium Thin Crash	Bright. Stronger high end than Thin Crash.	Medium Thin	16" 17" 18" 19" 20"	0230 0231 0232 0233 0234
Medium Crash	High-pitched. Full bodied. Stronger than Medium Thin Crash.	Medium	16" 17" 18" 19" 20"	0240 0241 0242 0243 0244
Rock Crash	Highest pitch. Hard crash.	Heavy	16" 17" 18" 19"	0250 0251 0252 0253
K.				
Splash	Quick, dark crash. Moderate sustain.	Paper Thin	8" 10" 12"	0857 0858 0859
Dark Crash	Dark, low-pitched crash. Fast response.	Thin	15" 16" 17"	0830 0834 0835
	Dark, low-pitched crash. Moderate sustain.	Medium Thin	18" 20"	0836 0838
amir.				
Crash	Quick decay. High-pitched.	Medium Thin	16" 18"	0922 0924
IMPULSE .				
Crash	Maximum crash qualities for hard rock players.	Medium	16" 18"	0972 0974

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Zildjian Quick Beat Hi Hats



A Tight, Quick, Funky Sound for Today's Drummers!

These new cymbals join the popular New Beat Hi Hat line, to offer drummers an even wider choice of Zildjian sounds. They are similar in weight and tone to New Beat Hi Hats, but the bottom cymbal is flat and has four holes instead of a cup for a controlled sound and beat. They produce a short, compact sound with fewer overtones and minimal over-ring. While New Beat Hi Hats continue to set the standard for Hi Hat sound, Quick Beat® Hi Hats are enjoying enthusiastic acceptance among rock and disco drummers.

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