

Subject : Differences between Ortofon cutterheads DSS 731 / 732 / 821

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DSS 731 is a stiff CD4 cutterhead with upper frequency limit @ 26 Khz.

DSS 732 is a soft Stereohead with upper frequency limit @ 22 Khz.

DSS 821 is a highlevel Stereohead with upper frequency limit @ 24 Khz.

DSS 821 was made because of three different reasons.

1. It is the best possible combination of the two others.
2. It has 3 dB higher sensitivity and electrical stability reserve.
3. Its mechanical amplitude is increased by corresponding 3 dB.

DSS 821 Frequency-range measured with different Feedback @ 5KHz :

Feedback = 12 dB. => 10 Hz. to 24 KHz. +3/-0 dB. (Extendet range)

Feedback = 10 dB. => 10 Hz. to 24 KHz. +0/-1 dB. (Flat response)

Feedback = 8 dB. => 10 Hz. to 24 KHz. +0/-3 dB. (Recommendet)

Feedback = 6 dB. => 20 Hz. to 20 KHz. +0/-3 dB. (Limited range)

This is to illustrate that the frequency-response of the cutterhead, can be changed by means of the level of the feedback. This gives you a greater possibility to handle critical programme-materials, such as sensitive high frequency or heavy low frequency informations.

High feedback = a crisp and detailed sound.

Medium feedback = a dry and analythic sound.

Low feedback = a smooth and soft sound.

Use 10 dB feedback for Acoustic instruments.

Use 8 dB feedback for Rock and Pop music.

Use 6 dB feedback for Punk, Heavy, Techno and Disco.

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<u>Cutterhead :</u>	<u>DSS 731</u>	<u>DSS 732</u>	<u>DSS 821</u>
Drive coil resistance	8.0ohm	8.0ohm	9.0ohm
Feedback coil resistance	135ohm	135ohm	200ohm
Feedback sensitivity @ 5KHz.	10mV	10mV	15mV
Feedback range @ 5KHz.	8-12dB.	6-12dB.	6-14dB.
Frequency range +0/-1 dB.	10Hz.-26KHz.	10Hz.-22KHz.	10Hz.-24KHz.
Bridge resonance +/-1 KHz.	30Khz.	26Khz.	28Khz.
Maximum amplitude @ 300 Hz	100um peak	100um peak	150um peak

Feedback sensitivity unit is : mV / cm / Sec @ 5KHz

Frequencyrange is measured with feedback level set to 10 dB @ 5KHz

Mecanical amplitude is measured Mono / Peak / Maximum @ 300Hz.

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Here is a quick way of adjusting the cutterhead feedback level.

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First the normal feedback setup procedure :

1. SinusGenerator = 5 KHz.
2. GeneratorLevel = minus 30 dB (safe level at all frequencies)
3. Amplifier PowerLimiter = On
4. Adjust feedback level = 10 dB.@ 5KHz. for flat response.

Decreasing the feedback level a few dB :

5. Observe the monitor VU meter.
 - 5.1 Turn feedback down. (meter reading goes up)
 - 5.2 Turn inputlevel down. (down to the previous value)
 - 5.3 Repeat with the other channel.

Increasing the feedback level a few dB :

6. Observe the monitor VU meter.
 - 6.1 Turn feedback up. (meter reading go down)
 - 6.2 Turn inputlevel up. (up to the previous value)
 - 6.3 Repeat with the other channel.

The feedback will now equal the initial 10 dB. plus/minus the correctionvalue.
This procedure will not effect the zero level, only the frequency responce.

Keep the feedback level between 6 and 12 dB. at any time.

High feedback gives Wide frequency range and Low stability.
Low feedback gives Narrow frequency range and High stability.

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Safety precautions

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Under all circumstances remember that the absolute maximum allowable feedback level @ 5KHz. is 16 dB for DSS 731/732 and 18 dB for DSS 821, on which the whole electro-mecanical system will tend to oscillate. If that happens the cutterhead will be damaged within 1 millisecond if amplifier-powerlimitation is not present.

Another dangerous situation occurs if the cutterhead-drivecoils are driven to their mechanical limits (at low frequencies) where the motion actually stops, and the feedback signal disappears. In this case the amplifier will turn up full power and blow off the cutterhead, because of the closed loop servo mecanism. The same thing happens if the feedback or the drivecoil wires for some reason where interrupted during a session.

Here are the most common reasons for defective and burned cutterheads.

1. Too extreme mecanical lowfrequency amplitudes.
Related to programme and / or too high zero cutting-level.
2. Interruptions in drive- and / or feedback-signals.
Caused by bad connectors or defective wires.
3. Oscillations caused by instability.
Caused by too much feedback or too long drive- and feedback-wires.
4. Mecanical overload and damage to springs and stylusbridge.
Caused by operator and / or tools during styluschange.

I is my hope that this small review on the Ortofon cutterheads has given You some safety informations useable at Your daily work in the studio.

The Ortofon cutterheads are more critical than other cutterheads on the marked, but this has to be seen in comparision to the technical performance this delicate piece of equipment is capable of producing.

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