Australian Technical Production Services

Using the Behringer MDX2600 Composer as a De-esser

Any future updates and other notes including may be found at : www.atps.net.

While you are under no obligation to send me any updates/improvements or corrections I would appreciate them (contact via the website).

Credits
This Article contains contributions by:
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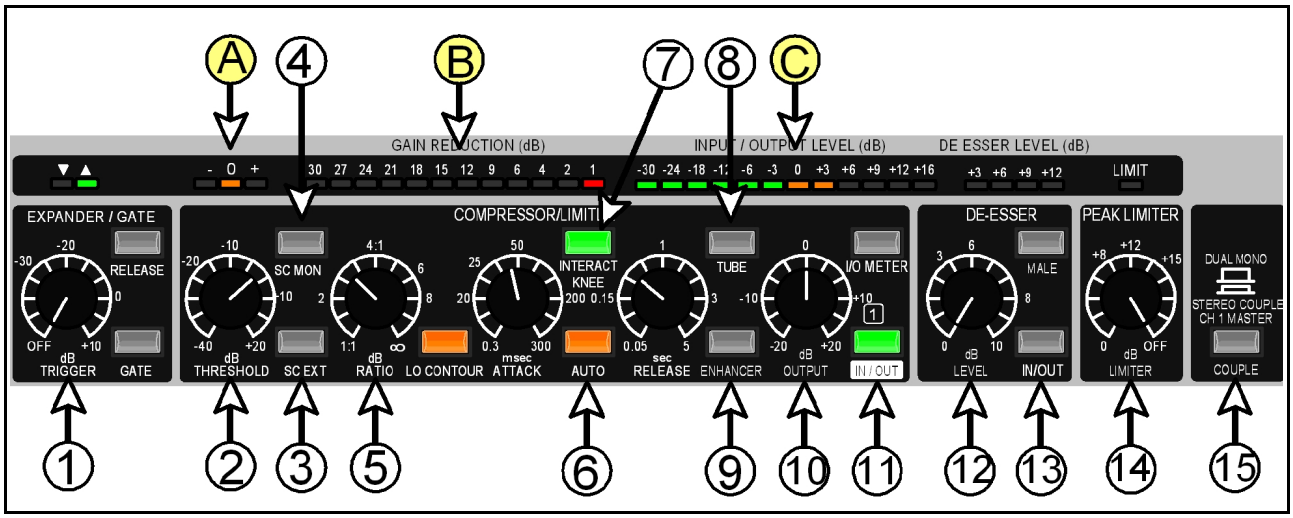
Use as a Compressor only



Unless you are experienced with compressors (in which case, you would not need to read these instructions) I suggest you start with attack and release set to Auto, compression ratio between 2:1 (less compression) and 4:1 (for more compression), and all other facilities off.

Initial Settings

1	Expander/Gate	Trigger	Off
2	Compressor/Limiter	Threshold	+20
3	Compressor/Limiter	SC External	Off
4	Compressor/Limiter	SC Monitor	Off
5	Compressor/Limiter	Ratio	between 2:1 and 4:1
6	Compressor/Limiter	Auto	On
7	Compressor/Limiter	Interactive knee	On
8	Compressor/Limiter	Tube emulator	Off
9	Compressor/Limiter	Enhancer	Off
10	Compressor/Limiter	Output	0
11	Compressor/Limiter	In/Out	On
12	De-esser	Level	0
13	De-esser	In/out	Off
14	Peak Limiter	Limiter	Off
15	Stereo Couple	Link	Off

With the performer singing or playing, turn down the threshold (**2**), until threshold indication (**A**) is changing to 0 and the Gain reduction LEDs (**B**) are just starting to light at normal levels.

This should be adequate to catch louder passages and help keep them under control.

If the vocals disappear in the mix when the compressor starts working, then try dropping the compression ratio (**5**), conversely if the vocals are still overpowering the mix on louder passages, try turning compression ratio (**5**) up.

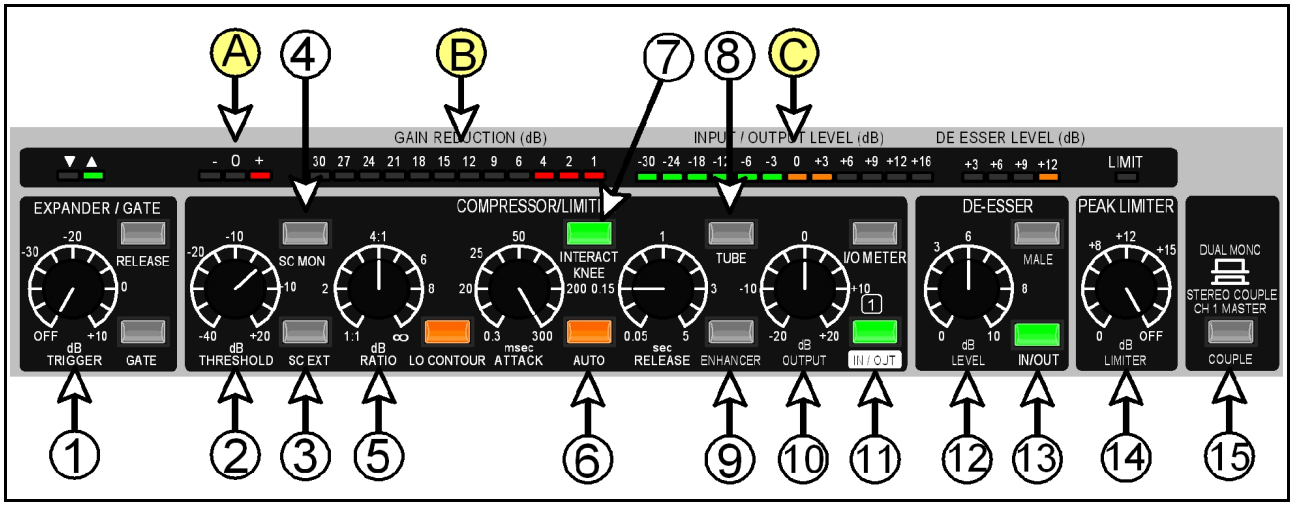
It can be a bit of a balancing act finding a good compromise between threshold and ratio , typically higher ratio will work better with a higher threshold, whereas a lower ratio will let you drop the threshold.

Use as both a Compressor and De-esser

The Composer can do both compression and sibilance suppression at the same time.

The principle behind the De-esser used in the Composer is that it increases the compressors sensitivity to higher frequency signals.

This means that the compressor, usually has to be at or near threshold for the de-esser to work most effectively.



The problem is, that while you generally want to keep compression fairly gentle for vocals, sibilance does not need to be anywhere near as loud as normal speech in order to be very annoying, for this reason, sibilance suppression generally needs to be a lot more brutal.

Initial Settings

1	Expander/Gate	Trigger	Off
2	Compressor/Limiter	Threshold	+20
3	Compressor/Limiter	SC External	Off
4	Compressor/Limiter	SC Monitor	Off
5	Compressor/Limiter	Ratio	4:1
6	Compressor/Limiter	Auto	On
7	Compressor/Limiter	Interactive knee	On
8	Compressor/Limiter	Tube emulator	Off
9	Compressor/Limiter	Enhancer	Off
10	Compressor/Limiter	Output	0
11	Compressor/Limiter	In/Out	On
12	De-esser	Level	0
13	De-esser	In/out	On
14	Peak Limiter	Limiter	Off
15	Stereo Couple	Link	Off

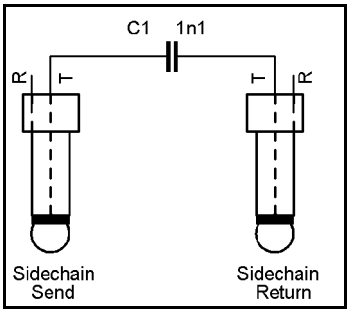
Start by setting up compression, drop threshold (**2**) until the compressor is just starting to work at normal levels, note that at 4:1 ratio (**5**) is starting at the higher end of what I would normally recommend.

Next increase De-esser level (**12**) until sibilance is being adequately reduced. If you are unable to get enough sibilance reduction, try switching the 'Male' button in, this drops the frequency range that the de-esser is sensitive to. Failing that increase the compression ratio (**5**), or drop threshold (**2**) further, although both of these will also increase compression of the vocals as well and this can quickly get to the point of being unacceptable.

De-esser only (using Side chain filter)

If compressing is compromising vocals dynamics too much, then inserting a highpass filter in the sidechain you can use the Composer (or any other compressor with a sidechain) to do sibilance suppression only.

Sidechain Filter



Normal speech has very little energy above 3000Hz while Sibilance does contain significant energy above 3,000 Hz. So if we set a compressor up to ignore frequencies below 3000 Hz then it will be triggered by sibilance and ignore the normal vocal range.

To do this we insert a highpass filter in the sidechain of the compressor as we do not need a particularly high performance filter for this application a single 1.1nF capacitor will provide a 6dB per octave filter at 3200 Hz (as shown in the picture on the left) which does the job nicely.

Filter values for other compressors

To Calculate filter values for other compressors you need to know the input and output impedance of the sidechain (output impedance is usually significantly lower than the input impedance, so if this not specified then you will usually get away with assuming that it is 0).

$C=1/(2\pi RF)$

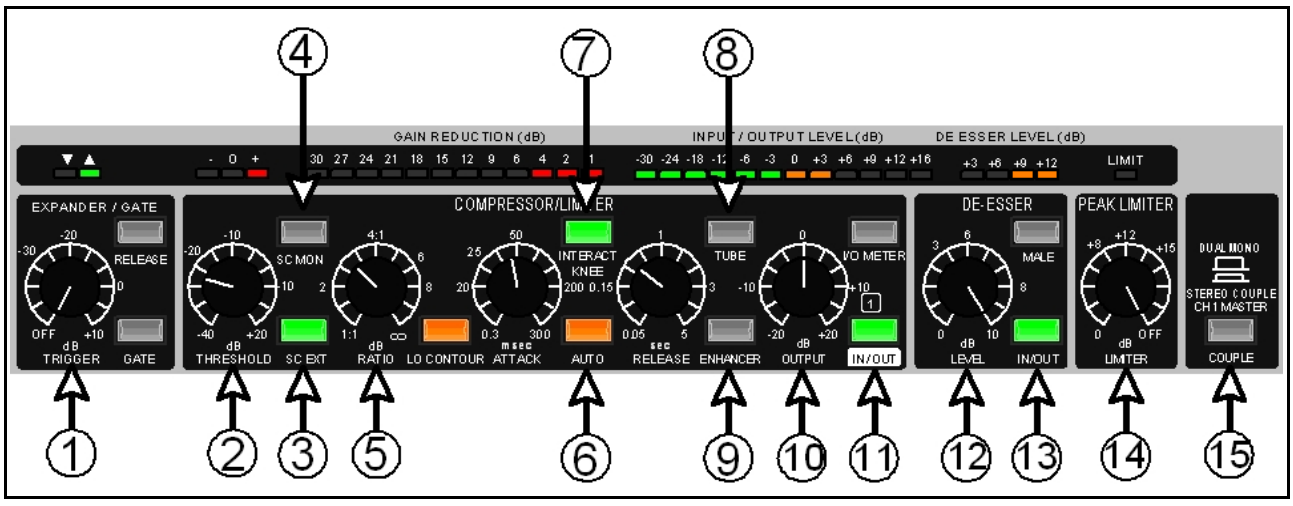
where:

C = Capacitance in Farads

R = input + output impedance of sidechain

F = high pass frequency in Hz, I suggest you aim at 3000

Initial settings



1	Expander/Gate	Trigger	Off
2	Compressor/Limiter	Threshold	+20
3	Compressor/Limiter	SC External	On
4	Compressor/Limiter	SC Monitor	Off
5	Compressor/Limiter	Ratio	4:1
6	Compressor/Limiter	Auto	On
7	Compressor/Limiter	Interactive knee	On
8	Compressor/Limiter	Tube emulator	Off
9	Compressor/Limiter	Enhancer	Off
10	Compressor/Limiter	Output	0
11	Compressor/Limiter	In/Out	On
12	De-esser	Level	10
13	De-esser	In/out	On

14	Peak Limiter	Limiter	Off
15	Stereo Couple	Link	Off

Start with ratio (**5**) at around 4:1 higher settings remove more sibilance.

2 Threshold – turn this down until you have the Gain reduction LEDs lighting on Sibilance and you hear the sibilance being reduced.

If the compressor is removing too much of the vocals after sibilant events then you may need to switch **6** Auto off and turn Attack and Release to their shortest settings.