How to Burn-in like a Boss

**WARNING**

These test signals are very loud so one must be very careful with the volume which may cause damage. Always start with the volume at minimum. AMR/iFi does not take any responsibility for loss of hearing and/or equipment damage. This is how we do it, nothing more, and nothing less. You are free to try but this is entirely at your own risk.

What is burn-in?

So-called "Burn-in" in HiFi is a hotly debated subject. Certainly it has been demonstrated that Speaker (and Headphone) drivers change parameters (and thus frequency response and thus sound) between a brand new un-played state and after either long term use or a forced burn in.

It has also been demonstrated that the cores in audio signal transformers (Tube Amp output) and other magnetic components (tape heads come to mind) can become magnetised, which increases distortion. So called "de-magging" such magnetic components is not too dissimilar to the process used for "Burn-in" and restores them to correct operation. Often the way equipment is assembled can magnetise parts.

Past that, noted Audio Objectivist Douglas Self has published a number of research results in which he had to admit that "audiophile" capacitors have generally lower distortion than generic equivalents of the same value and rating (1) and that certain types of capacitors show marked changes of distortion between "brand new" and "run for a few 100 hours"(2).

In many fields of electronics outside of audio, changes in operating parameters of electronics over the first few 100 hours are taken for granted and much test equipment is "burned-in" before calibration (read: precision electronics for testing/measurements in the fields of Aerospace, Medical Electronics, Electronic Test Gear etc.)

Now these points should not be taken as absolute proof that "burn-in" is real (especially for electronics). However there is enough here to not categorically reject that small and audible changes may happen.

1) Douglas Self - Amplifier Distortion Article Series in Wireless World
How iFi does Burn-in

The following are 3 tracks (with MP3 and FLAC versions):

1. Burn In Signal (Out Of Phase “OOP”)

2. Pink Noise -20dbfs Mono (In Phase “IP”)

3. Pink Noise -20dbfs Mono (Out Of Phase “OOP”)
1. **Burn-In Signal (OOP)**

To use the "Burn-In Signal" (OOP) track, simply load it into your playback software or player and play it on repeat.

This is a signal aimed at "exercising" speakers and other components. Play this at a level that does not cause obvious stress. It contains a very high level 50Hz tone at the end which decays in level towards silence, make sure this tone remains cleans and causes no overload of the system at the loudest part.

The signal was generated "out of phase". If mixing this signal to Mono one should not hear anything. Thus the speakers playing it can be placed "face to face" and reduce the sound output substantially, so fast "Burn-In" at high levels is possible without undue noise being produced.

2. **Pink Noise -20dbfs Mono (IP)**

This track contain pink noise that is "In Phase". It helps in diagnosing system problem and polarity and can be used to help speaker setup.
When playing this track the sound should appear to emanate from a small location centred in front of you exactly midway between the speakers or headphones.

If the sound is not centred there may be a problem in your system with channel imbalance or the placement of speakers is not symmetrical.

If the sound is too "defocused" your speakers may be too far apart or insufficiently toed in.

Adjusting Speaker positioning and toe-in to give a centred and minimal size point of origin for this noise will improve the ability of your system to image precisely.

3. Pink Noise -20dbfs Mono (OOP)

This track contain pink noise that is "Out Of Phase". It helps in diagnosing system problem and polarity and can be used to help speaker set-up.

When playing this track the sound should appear to emanate from all around and behind your location, no sound should appear to emanate from the speakers and/or in front of you.

Adjusting speaker positioning and toe-in to minimise any sound appearing in front of you and coming from the speakers, this maximises the width and depth of the virtual sound stage.

You should also compare the tonal balance of the OOP version of the track with IP version. Both should have the tonality, though OOP may sound a little bass light or dull. If the two version sound much different you may require re-positioning of the system and/or the addition of room treatment.

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