

Preface: Dear reader,

one of our friends here at GITEC is Bernd Meiser. He is a true expert in analog circuit design and particularly excels in the design of boosters (whether treble, broad-band or whatever). In fact, he has his own company manufacturing these devices. Bernd also writes articles for guitar magazines, discussing all kinds of effects devices. He recently agreed to a reworking and republication of articles of his in the framework of the GITEC websites, and I recently came across the below oeuvre which I found particularly entertaining - especially because Bernd's own take on music and the business shines through! I decided to translate it into English, hoping to keep Bernd's way of writing intact, and hoping that you will enjoy the article as much as I did!

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From the "Effect-ive!" series of articles:

British FX-boxes & the spirit of the times: Zeitgeist

By **Bernd C. Meiser**, translation by **Tilmann Zwicker**

Way back when Hardrock had just been conceived – this is around or just before 1970 – the global rock-scene was largely defined by British guitarists. With regard to the use of stomp boxes, they can roughly be distinguished into three categories. First, we get the pedal-o-phobic purists who had nothing between their (mostly PAF-laden) guitars and their (Marshall) amps but a coil cord, such as supersonic fretboard-acrobat Alvin Lee of Ten Years After, or the laid-back blues-rocker Paul Kossoff of Free. Then there were the users of treble boosters, mostly lead-guitar virtuosos like Ritchie Blackmore (of Deep Purple) or Rory Gallagher (then of Taste) feeding the outputs of single-coil pickups into Marshall or Vox amps. Later, Brian May continued this distinctly Brit-original booster-tradition into modern times. In contrast to just mentioned players, the third group included the users of "Tone Benders": to some extent Eric Clapton but mainly Jimmy Page and Jeff Beck, the paths of whom famously crossed in the framework of the Yardbirds and subsequently went on to enjoy great success and fame in bands such as Led Zeppelin and The Jeff Beck Group.

The Rockin´ 60s

First, let's take a quick look at the career path of the distorted sound - I shall, however, limit this excursion to the mother country of the distorted guitar sound: Great Britain. Ritchie Blackmore, having turned pro around 1960 (just like his almost same-age colleagues Clapton, Beck and Page) and later a pioneer of Hardrock, reports of a certain guitar player of the name Bernie Watson who, as a member of a band named The Rip Chords, supposedly played the solo on the first recording in Britain featuring a fuzz box. This impressed the young hard-rock-'n'-roller Ritchie (who was not really much into the Blues) to such an extent that as early as 1962 he aligned his sound corresponding – he was playing guitar in the Jack-The-Ripper-band of the wacky Screaming Lord Sutch then. This approach would become the cornerstone for Blackmore's later Hardrock sound that was however still a few years away because the time was not ripe yet for such a highly-stylized steamhammer-rock. The Beatles and Rolling Stones in general, and Eric Clapton with Cream in particular, first had to pave the way. On the road that developed, the Solasound Tone Bender played a significant role.

Beginnings

In the late 1950's, there must have been many electronics freaks that developed preamplifiers using the then-new-hi-tech Germanium transistors - and that will have included guitar-applications. Still, only the name Gary Hurst remains known to posterity. Early on, Gary appears in the orbit of the Vox company that had introduced their AC-15 in 1958, and a year later the AC-30 that would become legendary. The AC-30 quickly found its way into the arsenal of the Shadows and the Beatles – and then almost all popular bands played through this amp. Soon, Hurst developed the first distortion device for Vox: a composition of Germanium transistors that we might easily already call Tone Bender. It was not a high-volume product but was generated more in what we would today call a custom-shop or boutique single-unit production: small numbers with the circuit accommodated in a housing made of wood, put together for local guitarists. Given those times, these players had to be rather courageous indeed. Hurst experimented with a few different transistor types, because – contrary to today's silicon transistors that sound more or less all the same – those Germanium devices do audibly have their own sound when operated in the crunch-and fuzz-mode. This holds in particular for the quite adventurous contraptions from the early days of commercial transistor design. Eventually, Hurst arrived at a three-transistor-design that was strongly leaning on the first successful fuzz-device: the Maestro Fuzz-Tone FZ-1 with a 3-V-supply-voltage, released in 1962 in the USA (Gibson owned the Maestro name at the time). Eventually, based on that circuit, the Vox Tone Bender Mk1 evolved in 1965, with a supply voltage of 9V.

Let's back the truck up a bit, though ... in 1964, it was all haywire at the Vox company. Together, Tom Jennings, the founder of Vox/JMI (= Jennings Musical Instruments) and his technician Dick Denney were a great team, but Tom's qualities as a manager were doubtful, conservatively speaking. Enormous blunders occurred - in particular in the cooperation with the US-partner at the time, Thomas Organ. These culminated in the sale of the entire company to the Royston Group, and Jennings leaving. In this turmoil, Gary Hurst lost his competent counterpart – other people now had a say at Vox. Moreover, the liberal Gründerzeit-flair of the old Vox company was quickly going down the drain: not a good scenario for sound-tinkerers who typically do not appreciate stiff structures – these free spirits can quickly feel constrained. Hurst never actually was at home in one single company: working at one place, he quickly felt drawn to new frontiers in the next company. In any case, after the VOX-debacle he soon after met brothers Larry and Joe Macari. Having just opened a music store in London, the two attentively listened to him and his ideas.

Fuzz-Sound

In mid-1965, the Rolling Stones, with their mega-hit “(I Can't Get No) Satisfaction”, caused an undreamt of boom towards the new, revolutionary fuzz sound. The song had been recorded using the already mentioned 1962 Maestro Fuzz-Tone FZ-1. For sure, the conservatives in the class-conscious (remains of the) British Empire must have found this sound to be nauseating noise, or worse: as always, they smelled revolution and the end of civilization as we know (or, rather, as they knew) it. To the progressive youth that was just starting to successfully contend for its own identity and culture, the serrating sound was a strong weapon in the rise against the sclerotic social structures of establishment.

Inspired by this "Zeitgeist", the Macari brothers grasped their opportunity, and in 1965 founded the Solasound company in the rear-room of their music store – with this highly-gifted electronics freak Hurst in the background.

Solasound

The Macaris' first product was – how could it be different – just that old Tone Bender Mk1 of Gary's, house in a folded sheet-metal enclosure with two controls on top. It was of course not long until copies of the Mk1-circuit appeared in the United Kingdom, for example manufactured by Hornby-Skewes as "Zonk Machine", or by Selmer as "Buzz Tone" - the latter favorably used by Syd Barrett of the early Pink Floyd. With the aim of making the circuitry less expensive and more stable with respect to temperature changes, Hurst revised the device again in the spring of 1966 - this time he ended up with a two-transistor design in a new die-cast housing. Today, this series of the Tone Bender is distinguished by the designation Tone Bender Mk1.5. Right away, the biggest customer of the Macaris was no other than the Vox company (what irony!), where the new sound had made people prick up their ears, too. Vox thus commissioned Solasound to series-manufacture this Tone Bender for them – with a Vox-logo and in the bulky grey die-cast enclosure. Indeed, Solasound produced masses of this Vox Tone Bender (Mk1.5)! Not only will this be the most-sold Tone Bender, but today we link to it "the" Tone Bender circuit. The Macaris did sell the same circuit under their own Solasound moniker with different cosmetics, but the numbers produced were significantly lower – the company was not as well known yet. However, insiders quickly got wind of the fact that the well-sounding Vox stomp boxes hailed from the Solasound workshop, and their London shop with the name "Macari's Music Exchange" in legendary Denmark Street 22 fast became the stomping ground for local heroes Beck, Page & Townsend. It has been handed down that Jeff Beck and Jimmy Page spent some time in the workshop there, and even soldered transistors into their future stomp boxes by their own hand – everybody was fascinated by these small miracle-thingys back then. Apparently, it was a really informal, family-type scene in the shop. The Macaris now demanded to have their own distinct product to distinguish themselves more clearly from Vox. The cash register is filled more efficiently with the sale of one's own pedals, after all... Hurst then designed a new three-transistor circuit: the Tone Bender Mk2 – indeed a fine circuit, which in principle was a two-transistor Mk1.5 circuit with an additional one-transistor preamp in front. The die-cast housing was taken from the Mk1.5-predecessor.

By now, London had become the centre of a literally exploding music scene. In the midst of it, the Macaris rummaged around, after a short time changing the outfit of their stomp boxes by replacing the drab grey by colorful pieces of art that clearly matched the flair of their time: color-TV, multicolored miniskirts, colored high-heel boots, teased hair-do's, pop-art, paisley guitars, flower-power, hash and LSD. Soon, the Macaris supplied the happening in-scene guitarists with their inventive, snazzy devices that met professional requirements just as nicely. Customers included rough-around-the-edges anarcho-rocker Edgar Broughton, psychedelics Syd Garret and Steve Winwood, R&B-guys Pete Townsend, Jeff Beck, Jimmy Page and Eric Clapton (then freshly hailed as divine entity of the Blues), and the high-priest of Glam-Rock Mark Bolan, as well as Bowie's guitarist Mick Ronson. With that, their small company had rightfully positioned itself at the top of the aspiring new branch of industry.

After having resigned from Vox in 1967, Tom Jennings reappeared on the scene in 1968 and, together with Dick Denney, founded the "Jennings Electronic Developments" company - in short "Jennings". He manufactured exclusively various pedals, with his 1-knob fuzz being well known. The latter was fitted with two Japanese silicon transistors, and designed along the lines of the old Hurst-circuit Mk1.5. Jennings' pedal company closed its doors in 1973.

Marshall

Of course, clever businessman Jim Marshall could read the signs of the times. He was aware that the Macaris manufactured OEM-products for other companies, and so he also knocked on their door. He was having continued strong (and further increasing) success with his guitar-amp company. From the beginning of the year 1966, he (or rather his techie Ken Bran) had switched his amp-production from the expensive KT66 power tube to the less expensive more readily available EL34 (the latter fact being highly important for high-volume production), and they had given the preamp the decisive treble-kick. At the same time, the cosmetics of the amps were renewed - these amps would later be designated simply and reverently as "Plexis". To meet the requirements for more loudness (Townsend had been twisting Marshall's arm constantly about that), Jim had just introduced a new 100-W-series (4xEL34) that Clapton, Hendrix, Kossoff, Beck, Page, Lee and many more were to write Rock-history with – not to forget Blackmore and Ronson who used the brawny 200-W-Major (4xKT88 with an ultra-linear circuit design) introduced in the following year 1967. Riding on his success, Marshall had landed a fat distribution- and marketing-deal with the financially well-heeled distributor Rose-Morris that enabled his company to expand further. In short: Jim Marshall had lots of dough but no specialist in transistor-design at hand, while a distorting (Germanium) stomp box of the likes of the Solasound Tone Bender was conspicuously absent from his product line.

Marshall and the Macaris quickly came to an agreement. The new Professional Mk2 was unceremoniously subjected to a small modification but remained with the same technical and sound concept while mutating into the Marshall Supa-Fuzz that was released in 1967. It was exceptionally successful back in the day and today is a desirable and expensive, highly collectible item with an exquisite sound. Eric Clapton apparently immediately got hold of it and probably used it with Cream on a number of studio recordings – some of the Cream's BBC recordings sound like he used it there, as well. For Marshall's later spin-off company Park (which Jim founded to escape the developing octopus-like stranglehold of the Rose-Morris distributor at least to some extent), a model was also created – under the name Park Fuzz Sound and patterned after the later Tone Bender Mk3.

Arbiter

During this time many other companies started manufacturing distortion pedals, as well – most of these enterprises developed out of music stores. More often than not, the developers mightily peered into the circuit design of Solasound. Ivor Arbiter joined that scene in autumn of 1966.

Arbiter had been one of the pioneers in terms of distributing US-made guitars in Britain - because of the debts the UK had with the US (due to the lend-lease program in World War II), some goods made in the US (including guitars) had been subject to severe import restrictions until the end of the 1950's. Arbiter had helped to fill the resulting void via importing guitars made in continental Europe (in particularly Germany and Holland); in fact he had ferried Dutch-made guitars over to England himself personally using a gown van that a friend lent him, and thus laying the groundwork for his later empire of distribution of musical instruments. American guitars were difficult to come by on the British Isles until the import ban was lifted, and this situation changed only slowly - Arbiter was one of those working hardest to improve the situation. Anyway, he was brazen enough to simply issue, under the name Dallas-Arbiter Fuzz-Face, an only slightly modified Tone-Bender-1.5 clone. Manufactured by "Dallas Music Industries", the pedal was popularized in particular by Jimi Hendrix. Because of the nice Fender guitars on display there, Hendrix often hung out in Arbiter's music shop "Sound City" in London, and got to know the landmine-shaped stomp box there. It seemed to remind him remotely of the sound he was used getting from the Mosrite Fuzzrite device he had used during his less successful, previous period in the States. In 1969, Arbiter took over the Vox company from the Royston Group and entered the amplifier market with his own Sound City amp line. These amps were used by the early Pink Floyd, and sometimes by Hendrix. During the 70's, Arbiter sold Vox again - to Rose-Morris/Marshall. In 1969, Silicon transistors replaced the Germanium transistors in the Fuzz Face.

Roger Mayer

Around 1964 a certain Roger Mayer entered stage of the stomp-box business. He first served local heroes Beck & Page during their early Yardbirds period, before they started using Solasound. In late 1966, he met Jimi Hendrix, for whom he soon busily devised and built new effects, for example the Axis Fuzz or the Octavia – and the rest is history.

The diversity in the stomp boxes available back then is fascinating; sound-freaks, tinkerers and inventors simply were bubbling over with ideas. Most effects devices that are still of significance today were designed in those days ... treble-booster, fuzz, superfuzz, phaser (UniVibe), flanging effects, wah-wah, octavider, ring-modulator - to name just a few. But then, there was also the indescribable, the woozy, the seemingly out-of-this-world stuff that appeared in those years, such as the '69 octavia by Tychobrahe or the '66 "Zonk Machine" by Hornsby Skewes ... electronic anti-matter of the pre-StarTek age. Presented with the corresponding schematics, your regular well-behaved and sensitive engineer would probably commit hara-kiri using his heated-up soldering iron ...

The better kind of these stomp boxes presented another advantage: the amplifier played a less important role in creating the sound, which tremendously assisted your typical young, aspiring guitar player with the customary access to only rather limited funds. Second-rate amps (such as e.g. WEM, Sound City, Simms Watts, Selmer, etc.) sufficed to still get that "happening" sound.

The music "tips over"

With the Swinging Sixties drawing to a close, silicon had become more affordable and spread into the circuits – on top of that the general taste in music tipped over to some extent, and the first-generation of super-groups fell apart. In endless, ear-splitting improvisations with Cream, Clapton had played blues-rock almost to death, while flower-power definitely had found an end - the dream of the peaceful togetherness had burst the latest with the lethal stabbing of Meredith Hunter (at the Altamont festival in December 1969) in front of the rolling camera. Almost coup-like, the music scene was taken over by aggressive, noisy Hardrock, with Ritchie Blackmore and Toni Iommi (both using treble boosters) being primary exponents in the UK, and Leslie West (of Mountain, deploying a Maestro Sustainer prototype), Glen Buxton (of the Alice Cooper Band, using a modified silicon Fuzz Face), Mark Farner (of Grand Funk Railroad, armed with a Mosrite Fuzzrite and Green Ringer) in the US. However, guitarists from other genres were also happily switching on their stomp boxes, taking advantage of that assertive shaping of harmonics – examples being enfant terrible and crossover-rocker Frank Zappa (with a Green Ringer built into his Gibson SG, and a Mosrite Fuzzrite), or country rocker Neil Young (using a Tone Bender Mk1.5). Of the old British guard, only the progressive speed-blues-rocker Alvin Lee (of Ten Years After), and Jimmy Page with Led Zeppelin and their blues rock (later sans blues) got their commercial act together, as did down-to-earth "anti-star" Rory Gallagher. Side note: back in the day, Rory was among the very few guitar heroes who went onstage carrying a (over the years naturally) cosmetically worn-down guitar; all other guitareros showed off their success (and money) by – amongst other things – always sporting the then most recent and trendy guitar models. How the times have changed ...

Round about 1970, Solasound changed their name to Colorsound – a better match to their by now most colorful pedal-outfits. The change was not an abrupt one, though, and at the beginning of the 1970's there were both concurrent Solasound- and Colorsound-devices. Germanium transistors were now generally out of fashion - about as out as a 386 PC-mainboard with a 40-MHz-clock would be today. Solasound/Colorsound, however, did not tune into the swansong of Germanium right away. On the contrary, in 1968 they introduced, as the nominal successor to the two-knob Professional Mk2, the 3-knob Tone Bender that therefore is also called Tone Bender Mk3. The heavy-duty die-cast housing had to give way to a more thrifty sheet-metal enclosure, while the circuit boasted three Germanium transistors and a Germanium diode, and had nothing in common with its predecessor - but it did retain a superb sound. This Mk3-device appeared – slightly modified and subcontracted as an OEM-product – mainly under the Vox-moniker as "Tone Bender Mark III", in the framework of Marshall's "other company" Park as "Fuzz Sound", and as Rotosound "Fuzz". In 1971, the sheet metal design was reworked, and the colorful pedal now was named Colorsound Tone-Bender Fuzz – also known as Tone Bender Mk4.

Silicon

Eventually, Colorsound also felt they had to keep up with the times so as not to leave the business with the harder Silicon sound entirely to the competitors. Therefore they introduced, in the same year 1971, their new 9V-silicon-pedal, the "Overdriver" sporting a 3-knob layout. Later, an 18V-version (clad in a dangerously orange-colored outfit) followed under the designation "Power Boost". Both devices had the same sheet-metal enclosure as the Tone-Bender Fuzz but of course featured a different color-scheme and new inner workings: a two-transistor preamp with adjustable gain and a subsequent active bass & treble control (Baxandall-type); the whole thing realized using 3 Silicon transistors. This made the Overdriver highly flexible; the pedal was fielded as a competitor to the silicon-equipped "Big Muff Pi" that had been released by Electro Harmonix in the USA in early 1971 to considerable success. Latin rocker Carlos Santana allegedly was enthusiastic about the Big Muff because it enabled him to get that ultra-long, soft sustain back then.

Adjusted to low-to-medium gain, the Overdriver provided a gloriously loud but still rather clean boost with output in spades. The pedal was readily employed back in the day by British rockers to seriously push their tube amps ... the acts ranged from Status Quo to Wishbone Ash, and on to Jeff Beck – on his mid-1970's records, the Overdriver was an almost constant "guest".

Colorsound did finally phased out the Germanium-based Mk4 in favor of Silicon-technology. The successor was the three-transistor Jumbo Tone Bender in a larger sheet metal enclosure and with a new circuit design that was strongly reminiscent of the Big Muff Pi mentioned above. The high point of the era of Silicon transistors was reached with the typical sounds of Mark Bolan's esoteric T.Rex (using Sola-/Colorsound) or the brutal Slade (using the Silicon Fuzz Face), both of which regularly creamed off the charts in 1972. Never again were the upper ranks of the charts sorted guitar-sound-wise so hypnotically pounding (T.Rex: Ride a White Swan, Children of the Revolution, 20th Century Boy), or so (almost unbearable) hard (Slade: Gudbuy T'Jane, Mama Weer all Crazee now, Cum on Feel the Noize). The former group had blew your mind via the lyrics, the latter gave you a stroke: death by overdose of auditory silicon! Compare that to the scene some years later ... the renowned German poet Heinrich Heine might have rhymed: "Denk' ich an MTV bei Nacht, bin ich um den Schlaf gebracht ... " – (loosely and un-poetically translated: "if I think of MTV at night, sleep will go but come will fright").

By the way: the Silicon-based "Power Boost", and also the Silicon-version of the Dallas-Arbiter Fuzz Face (introduced in 1969), did find use by David Gilmour of Pink Floyd in 1973 on their "millennium-space-flyer" album "Dark Side of the Moon" - but now successfully deployed towards a much better sounding result. There you go, after all!

As all things, the era of the transistorized Tone Bender devices came to an end at some point ... the broad public had had enough of consuming Hardrock and hard pop. New sounds were possible (and of course immediately capitalized on) due to the appearance of master-volume and high-gain, two-channel amplifiers, and on the basis of new distortion pedals that worked with the recent integrated circuits (IC's, e.g. the MXR Distortion+ or the DOD 250), as well as with the advent of brand-new phasers (MXR Phase 90) in the 9V-stomp-box format. These sounds crowded out Hardrock in favor of the burgeoning, initially pop-colored, Mainstream. The 4-transistor design introduced in 1974 under the name Colorsound Supa Tone Bender could not stem the new tide, either. This device was originally developed for Steve Hackett of Genesis – who at that time still led the group together with singer Peter Gabriel, with a certain Phil Collins back behind the drums (and only there!) ... blimey, that one (!) was a hell of a band. However, Hackett and his colleague in the Prog-Rock band "Yes", Steve Howe, loved the Germanium sound of their Marshall Supa Fuzz and Shaftsbury Duo Fuzz, and they remained faithful to their primeval dinosaurs.

Maxon

The Japanese effects-smiths at Nisshin (better known under their trade name Maxxon – they also designed effects devices for Ibanez, among others), were fascinated by the Electro-Harmonix Big Muff PI to such an extent that they shamelessly copied it. The result was the first device out of Japan with the designation "Overdrive", the OD-850. The designation is, however, misleading – in terms of the circuitry, this is clearly a fuzz. Nevertheless, after a few intermediate steps, the ensuing development led – as we all know – to the Maxon-808 and the same-circuit Ibanez TS-808 Overdrive Pro, in short: the Tube Screamer, with both devices being based on the Boss OD-1 developed shortly before. The latter thus represents the (grand-) daddy of all overdrives as we know them today.

... Swansong

The stomp-box offerings from the Colorsound factory (that had grown tremendously after a move to new premises) had become rather vast from the mid to late 1970's; even PA's, mixers, electric pianos, pickups and more had been introduced into the range. Nothing is more fickle than the musical-instrument market, though. In the US, new stars had started to shine on the effects-firmament: for example MXR, Electro-Harmonix, ProCo, DOD or A/DA. From the Far East, too, evil descended onto the conservative British market in the shape of economically priced, well-designed devices made by Ibanez and Boss. These often were copies, but there were also impressive advancements of the fine American-made stomp boxes. For the UK-made floor-effects, a slow but unstoppable death lay ahead, and doors were closed at Colorsound in the early 1980's.

In the 1990's, the sons of the Macari brothers revived their fathers' brand with the aid of the old Vox-swashbuckler Dick Denney. Colorsound was back (in the original enclosure design) - unfortunately partially only with rudimentary similarities to the originals in terms of the electronics.