v. 18.june.2007

Mark bass

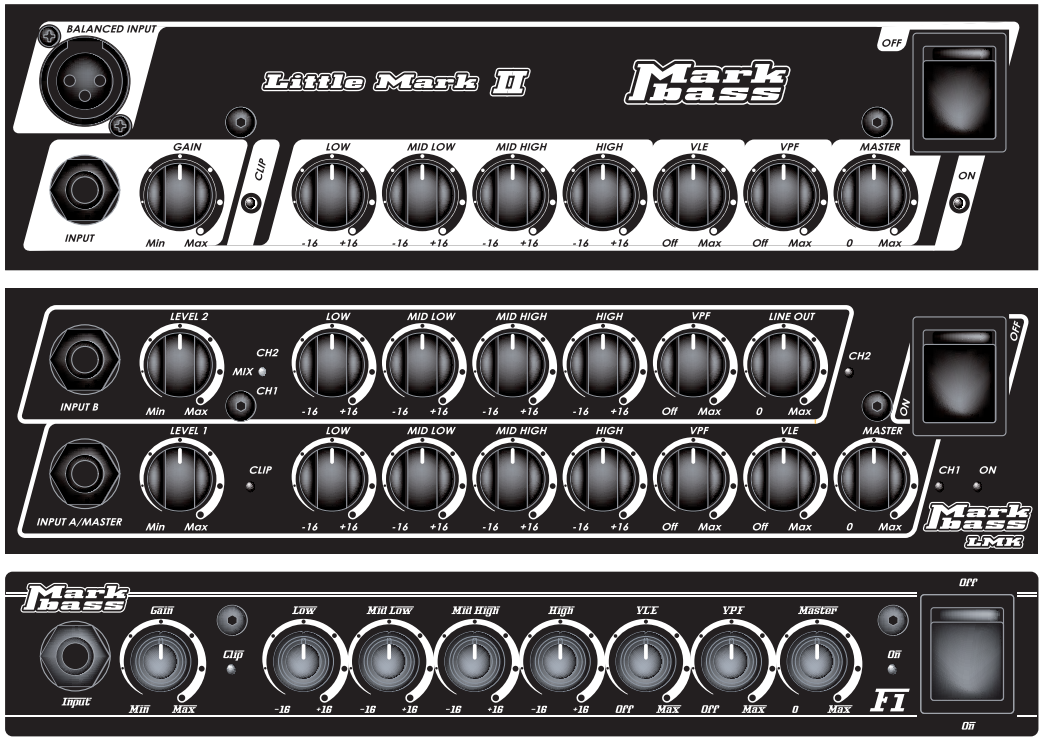
BASS at its BEST

www.markbass.it

OWNER'S MANUAL

LITTLE MARK II ~ LITTLE MARK 250 ~ COMBO HEAD ~ LMK ~ F1

OWNER'S MANUAL



1. INTRODUCTION

Congratulations on purchasing one of the world's best bass amplifiers! Markbass amps are built to the highest standards by a small team of skilled technicians in San Giovanni Teatino, Italy.

We have spent many years researching not only the highest-quality technologies for bass amp design and construction, but also the practical needs of the working bassist. The end result is a product that combines outstanding sound quality with intuitive features, attractive design and extreme reliability - all in one impossibly lightweight unit. This amp will allow your instrument to speak in its natural voice, faithfully conveying your musical ideas to your audience with stunning clarity.

Your amplifier has passed rigorous product testing and should survive even the toughest of environments on the road, in clubs, rehearsal halls and concert stages. Nonetheless, please treat it with care and you will be rewarded with many, many years of glorious, rich, powerful bass tone!

If the clarity and power of this amp inspire you to play better music, we will have succeeded in our mission. Good luck and enjoy your new best friend!

Sincerely, Markbass

1.1 A WORD FROM MARCO DE VIRGILIIS

When I began to develop the Markbass concept in Italy several years ago I had one objective in mind: to produce a top-quality bass amp that would meet the needs of professional bass players everywhere. I wanted my amps to be compact and lightweight, yet able to handle the low frequencies that today's four, five and six string passive and active basses are capable of producing. Thanks to modern technology and the availability of high-quality components like low-profile toroidal transformers, neodymium speakers and so on, I was able to accomplish this.

The Markbass amplifier circuitry is designed specifically not to color the sound of the bass but to faithfully reproduce the unique tonal qualities of whatever instrument is played through it. I have worked very closely with many high-profile professional bass players around the world to fine-tune the Markbass product line.

I am confident that the Markbass line of amps and cabinets is now ready to satisfy the needs of bass players all over the world.

Thanks for choosing Markbass; I hope you will find your new amp to be an inspiring upgrade to your sound!

We encourage you to use your Markbass gear in all kinds of musical situations—and please help us to continue developing our products by sending your comments to info@markbass.it.

And above all, enjoy the music.

Marco De Virgiliis

MARKBASS - ITALY

www.markbass.it

2. IMPORTANT SAFETY INSTRUCTIONS

1) Read these instructions;
2) Keep these instructions;
3) Heed all warnings;
4) Follow all instructions;
5) Do not use this apparatus near water;
6) Clean only with a dry cloth;
7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions;
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatuses (including amplifiers) that produce heat;
9) Do not defeat the safety purpose of the polarized or ground-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade and the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet;
10) Protect the power cord from being walked on or pinched, particularly at plugs, power receptacles, and the point where the cord connects to the apparatus;
11) Only use attachments/accessories specified by the manufacturer;
12) Unplug this apparatus during lightning storms or when unused for long periods of time;
13) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, when the power-supply cord or plug is damaged, when liquid has been spilled or objects have fallen into the apparatus, when the apparatus has been exposed to rain or moisture, or when the unit does not operate normally, or has been dropped;
14) Warning: to reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture; and objects filled with liquids, such as vases, should not be placed on this apparatus;
15) The power outlet shall be positioned near the equipment and shall be easily accessible;
16) The power plug should be disconnected from the unit prior to servicing.

2. PRÉCAUTIONS D'EMPLOI

1) Lire ces instructions;
2) Conserver ces instructions;
3) Suivre tous les conseils d'utilisations;
4) Suivre toutes les instructions;
5) Ne pas utiliser cet appareil au bord de l'eau;
6) Nettoyer uniquement avec un chiffon humide;
7) Ne pas bloquer le système de ventilation. Installer conformément aux instructions du fabricant;
8) Ne pas installer l'appareil près d'une source de chaleur tel qu'un radiateur, un fourneau, ou bien un autre appareil qui produit de la chaleur;
9) Ne pas modifier le système de sécurité de la fiche polarisée ou de de la fiche pour les prises de terre. Une fiche polarisée a deux broches, l'une étant plus distante de l'autre. Une fiche pour prise de terre a deux broches et une pointe pour la masse. La broche plus distante et la pointe pour la masse ont été installées pour votre sécurité. Si la fiche fournie de rentre pas dans votre prise de courant consulter un électricien pour la substitution;
10) Protéger le cordon d'alimentation afin qu'il ne soit pas piétiné ou écrasé tout particulièrement au niveau des fiches, des prises de courant femelles, et des parties qui sortent de l'appareil;
11) Utiliser uniquement les accessoires recommendés par le fabricant;
12) Ne pas branché l'appareil en cas d'orage accompagné d'éclairs. Le débrancher en cas de non utilisation prolongée;
13) S'adresser à un service assistance agréé si l'appareil a subi des dommages, si le cordon d'alimentation ou la fiche a été endommagé, si un liquide a été renversé sur l'appareil ou bien si un object est tombé dans l'appareil, si ce dernier a été exposé à la pluie ou à l'humidité, s'il ne fonctionne pas correctement ou s'il est tombé;
14) "Avertissant: pour réduire le risque du feu ou de décharge électrique, n'exposez pas cet appareil à la pluie ou l'humidité et les objets emplis de liquides; tels que des vases, ne devraient pas être placés sur cet appareil".
15) La prise de courant doit être installée près de l'appareil et doit être facilement accessible;
16) La fiche principale doit être débranchée avant toute opération d'entretien.

More information - For warrantee and service information, please contact your local Markbass distributor (contact information available at www.markbass.it).
For more technical information, please visit us at www.markbass.it and fill out the form on the Contact Us page. We hope you enjoy your amp and use it to make great music!

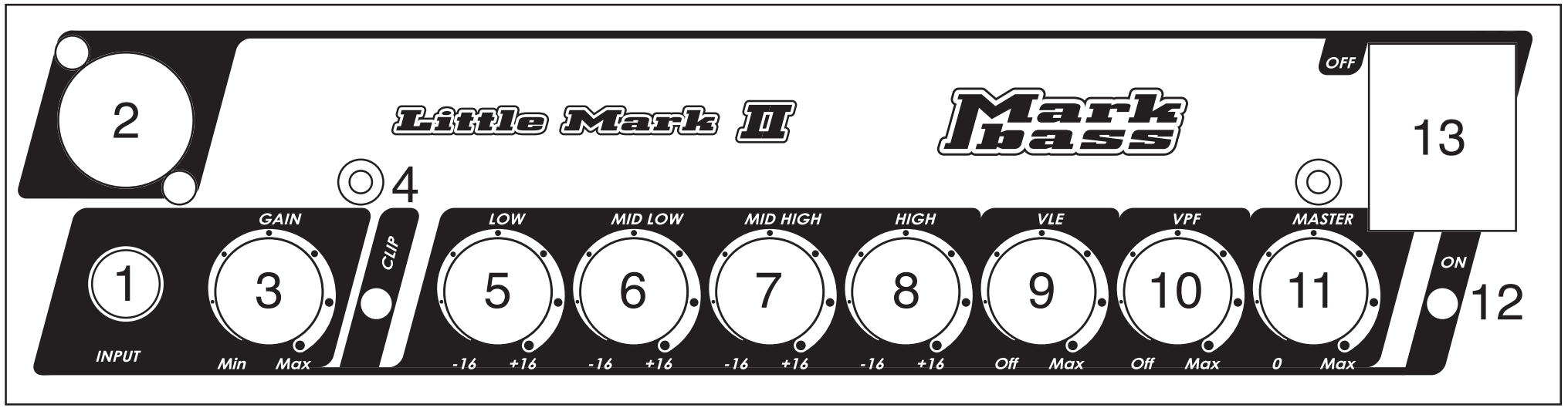
"The Lightning Flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product enclosure that may be of sufficient magnitude to constitute a risk of shock to persons."

"The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product."

3. LITTLE MARK II/LITTLE MARK 250/COMBO HEAD PRODUCT OVERVIEW

The Little Mark II/Combo Head is a high-quality bass amplifier with a solid-state preamp and an analog power amp, which delivers 500W of power into a 4 ohm cabinet, or 300W into a 8 ohm cabinet. The Little Mark 250 is virtually identical to the Little Mark II/Combo Head, but delivers 250W of power into a 4 ohm cabinet or 150W into a 8 ohm cabinet.

3.1 LITTLE MARK II/LITTLE MARK 250/COMBO HEAD FRONT PANEL



INPUTS

The 1/4" INPUT JACK (1) can be used for both passive and active basses.

The BALANCED INPUT (2) accepts a balanced XLR input, allowing the head to accommodate for all kinds of acoustic bass pickup systems.

GAIN and MASTER

There are two knobs on the front panel of the amp that control the volume of your bass. The GAIN (3) control determines how much signal is passed through the preamp stage of the unit, which includes equalization and the effects loop. The MASTER (11) volume regulates how much output comes out of the power amp into your cabinet.

If playing through the amp causes the blue CLIP (4) light to turn on at all, you should turn down the GAIN (3) control to avoid distortion.

When you first plug into the amp, start with the GAIN (3) and MASTER (11) controls set at their lowest levels, in other words turned all the way counter-clockwise. Then, turn your instrument's volume up to its full level and play as hard as you do in your most aggressive moments, and turn up the GAIN (3) control until the blue light starts illuminating. Next, back off on the GAIN (3) just enough so that the light stays off as you play. This method will result in the optimal gain setting for the bass you're playing. Different basses have different output levels, mostly depending on their pickups—and in the case of active basses, the instrument's onboard preamp and EQ settings.

Once you've set the GAIN (3) level, use your MASTER (11) knob to control the volume of your bass.

EQUALIZATION

Markbass amps are designed to faithfully reproduce the natural sound of your bass. If you have a good instrument, very little equalization (EQ)—if any—should be required. Bass guitars produce a surprisingly wide range of frequencies—from extremely low frequencies that are more felt than heard, to extremely high frequencies that pass through your cabinet's tweeter and are barely audible to the human ear. As you experiment with your EQ settings, you will notice that all the different frequency ranges play essential roles in making up your bass tone:

LOW frequencies constitute music's sonic foundation—they give power to your sound, physically resonating your listeners' bodies (and yours!), sometimes even causing people to move and dance!

LOW MIDs ("MID LOW" or Mid Frequency Low) make your bass sound loud, projecting the sound over long distances, "filling the room."

HIGH MIDs ("MID HIGH" or Mid Frequency High) convey the pitch of the notes that you play. Clarity of this range ensures that the melodies in your bass lines are heard. If detail is missing in this range, your melodic contribution to the music will suffer.

HIGH frequencies carry the percussive content of your playing—the attack of your notes, the sound of your finger or pick passing over the string, fret noise, and in the case of slap bass, the "tick" noise produced when the strings bounce off the frets.

If any one of these frequency ranges is neglected or poorly represented by your amp, you are not hearing an accurate representation of the sound that your bass is generating. Since these amps has been designed to give you clear, detailed and musical sound at all frequencies, when the amp is set "flat"—with all EQ knobs at 12 o'clock—you should hear a very true mirror of the sound of your bass.

However, the following circumstances will require you to use equalization:

1. The signal from your bass is lacking output level in one of the frequency ranges described above.
2. The room or venue you're playing in has poor acoustics and excites a certain frequency. For example, if you're playing on a hollow stage, certain low frequencies may sound disproportionately loud or out- of- control, and you may notice that every time you play a certain note, it sounds much louder than all the others. In these cases the offending frequency needs to be identified and reduced.
3. You're seeking to alter the basic sound of your instrument in order to achieve a particular musical effect.

Equalization should be treated as fine-tuning. Spend some time listening to your bass through the amp with all the EQ controls in the neutral (12 o'clock) position before you start changing the settings. You're likely to need little or no equalization!

However, if and when equalization is required, you will find this amp's EQ to be powerful and impressively detailed.

The LOW EQ (5) control is set to a center frequency of 40 Hz. This means that it either boosts or cuts the volume of the frequencies around 40 Hz, to a maximum of 16 decibels.

The LOW-MID (MID LOW) (6) EQ control boosts or cuts the frequencies around 360 Hz, by as much as 16 decibels.

The HIGH-MID (MID HIGH) (7) EQ control boosts or cuts the frequencies around 800 Hz, by as much as 16 decibels.

The HIGH EQ (8) control boosts or cuts the frequencies around 5 kHz, by as much as 16 decibels. The Q on this EQ (the range of frequency controlled) is quite wide, spanning from about 2 kHz to about 30 kHz.

VLE and VPF FILTERS

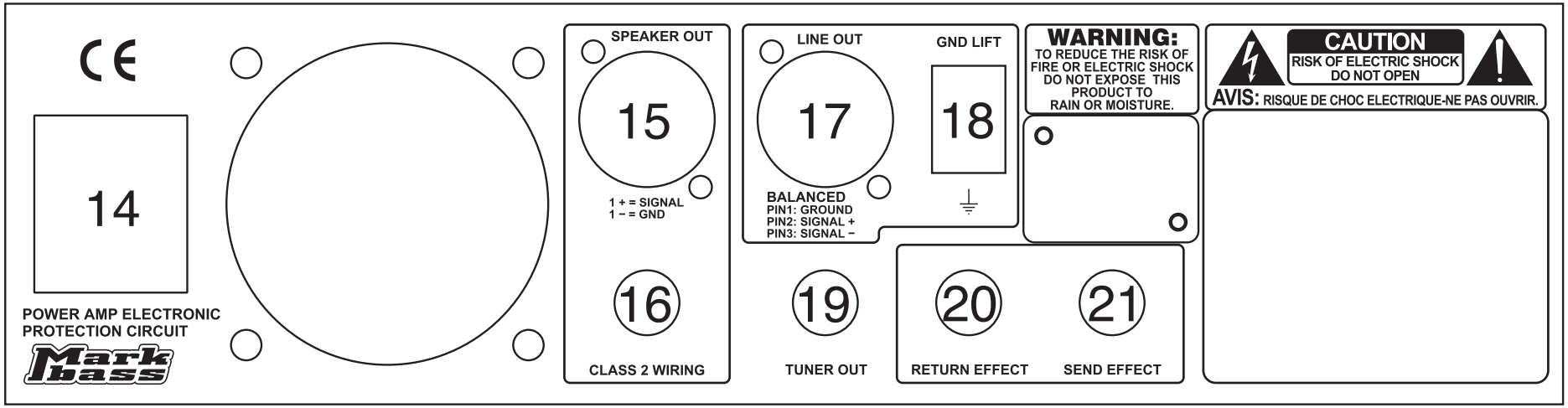
Markbass amplifiers feature two magic knobs that alter the equalization of your bass signal with specially formulated musical results. Most players use these controls more than the EQ since they were designed specifically to meet the practical needs of bassists.

The VLE (9) (Vintage Loudspeaker Emulator) filters out high frequencies to give you a mellower, less modern sound. As you turn the knob clockwise, you will find that a wider and wider range of high frequencies gets cut (see page 21 for a graph of this filter's function). This EQ effect is especially useful for acoustic and older styles of music.

The VPF (10) (Variable Pre-shape Filter) boosts lows (around 35 Hz) and highs (around 10 kHz), and cuts mids at 380 Hz. This filter has very powerful uses for rock music and is also a favorite of many slap bass players (see page 21 for a graph of this filter's function).

Again, we recommend you start off with these filters in the off position, and dial them in gradually to discover what effect they have. Explore them separately first—but you may find that using both in combination can lead to some very appealing and musical results!

3.2 LITTLE MARK II/LITTLE MARK 250/COMBO HEAD REAR PANEL



SPEAKER OUT
These amplifiers can be connected to one or two speaker cabinets. The high-quality Neutrik SPEAKON COMBO jack (15) accepts either a SPEAKON or a 1/4" speaker cable, and the second speaker JACK (16) accepts only 1/4" cables. Do not use instrument cables. The Little Mark II and Combo Head delivers 300W of power into an 8 ohm cabinet, or 500W into a 4 ohm cabinet. By default, the Combo Head is connected to the speaker cabinet housed in the combo. However, you can either connect the head to a separate, external cabinet (unplug the 1/4" cable from the speaker out jack, and replace it by a speaker cable that you connect to the external cabinet), or you can use both the internal cabinet and an external cabinet by using both speaker jacks. The Little Mark 250 delivers 150W of power into an 8 ohm cabinet, or 250W into a 4 ohm cabinet.

LINE OUT
This balanced XLR (17) output sends a balanced signal to the mixing console or snake in live and studio situations. The line out signal is post-EQ and post-filters (which means that the signal that you send to the sound engineer is affected by your EQ and filter settings), but can be easily modified by a qualified technician to be pre-EQ if desired.

GROUND LIFT
Occasionally when you're playing live and using the LINE OUT (17), the soundman will detect a hum from your amp's signal. This is almost always due to a grounding problem related to your power source; you will likely eliminate this hum simply by flipping the GROUND LIFT (18) switch.

TUNER OUT
The TUNER OUT (19) is an unbalanced signal that can be sent to a tuner, allowing you to tune as you play without passing your signal through pedals, which can degrade the quality of your signal. You can also use this output to send your signal on to another amp, or any kind of recording unit that doesn't require a balanced signal.

EFFECT SEND AND RETURN
If you use effect pedals or rack gear, you can route them through the SEND EFFECT (21) and RETURN EFFECT (20) on the rear panel of the amp. The effects loop is wired in parallel—this means that if something happens to your effects chain (a battery dies or a cable gives out, for example) while you're playing, you will not lose your main signal. If desired, however, the effects loop can be easily modified by authorized service personnel to operate in series.

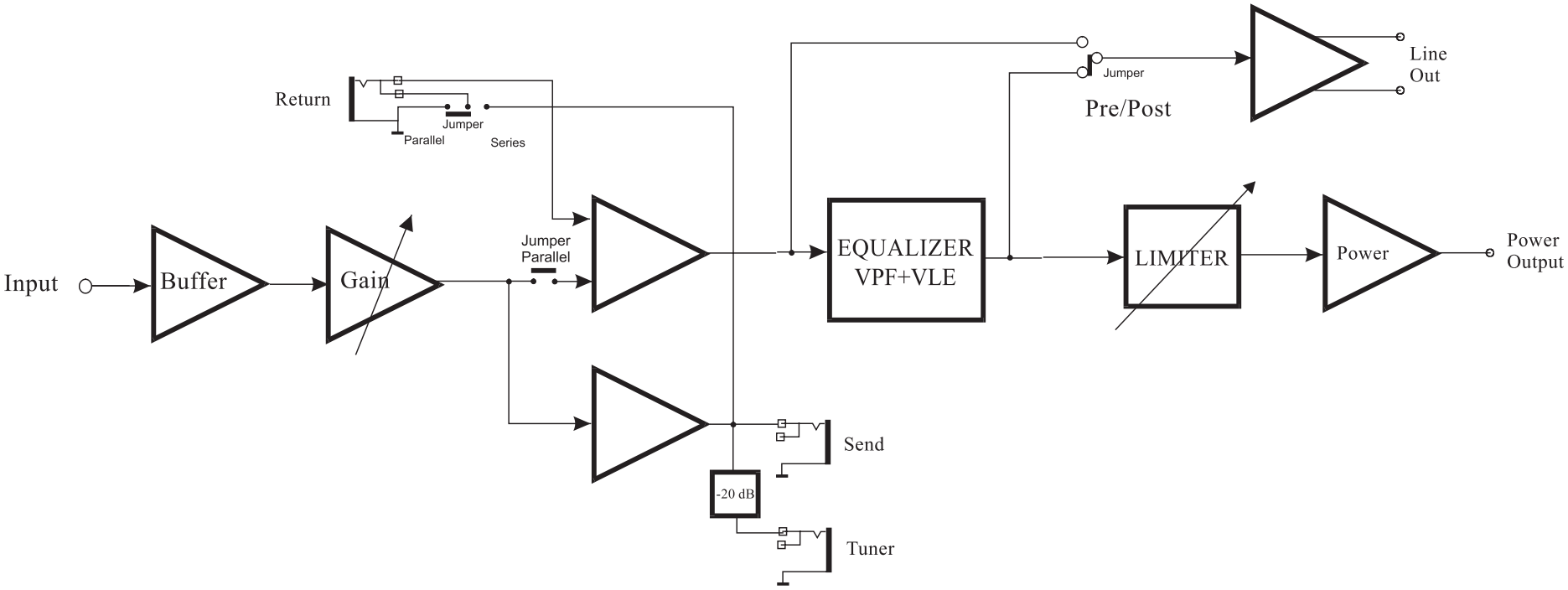
3.3 LITTLE MARK II/LITTLE MARK 250/COMBO HEAD TECHNICAL DETAILS

INPUTS	
INPUT	impedance: 500 Kohm, max. voltage: 15 Vpp
BALANCED INPUT	impedance: 22 Kohm, max. voltage: 25 Vpp
RETURN EFFECT	impedance: 22 Kohm, max. voltage: 25 Vpp
CONTROLS	
GAIN	–80 dB to +25 dB range
LINE OUT	level control on front panel
PRE/POST EQ (for line out)	switch on rear panel
GROUND LIFT	switch on rear panel
MASTER VOLUME	
EQUALIZATION	
LOW	center frequency: 40 Hz; level: ±16 dB
MID LOW	center frequency: 360 Hz; level: ±16 dB
MID HIGH	center frequency: 800 Hz; level: ±16 dB
HIGH	center frequency: 10 kHz; level: ±16 dB
VLE (Vintage Loudspeaker Emulator)	max cut range: 250 Hz – 20 kHz
VPF (Variable Pre-shape Filter)	center frequency 380 Hz (cut)
OUTPUTS	
SEND EFFECT	unbalanced, max. voltage 20 Vpp (pre-EQ)
TUNER OUT	unbalanced, max. voltage 25 Vpp
LINE OUT	balanced XLR, max. voltage 10 Vpp
SPEAKER OUT	“speakon / 1/4” (x2)”
OTHER	
HEIGHT	2.8 in. / 7.1 cm
DEPTH	10.1 in. / 25.6 cm
WIDTH	10.87 in. / 27.6 cm (can be extended to standard rack size with optional rack ears)
WEIGHT	6.39 lbs / 2.9 kg (Little Mark II-Combo Head), 5.73 lbs / 2.6 kg (Little Mark 250)
OUTPUT POWER	300W RMS @ 8 ohms, 500W RMS @ 4 ohms, (Little Mark II/Combo Head) 150W RMS @ 8 ohms, 250W RMS @ 4 ohms, (Little Mark 250)
POWER REQUIREMENT	100V; 120V; 230V; 240V 50/60Hz (Voltage is factory preset according to region of sale and can be modified by authorized Markbass service technicians)
FUSE	
EUROPE	4A 250V T 5x20 (Little Mark II / Combo Head), 3.15 A 250V T 5x20 (Little Mark 250)
AUSTRALIA/UK	4A 250V T 5x20 (Little Mark II / Combo Head), 3.15 A 250V T 5x20 (Little Mark 250)
USA/CANADA	8A 250V T 5x20 (Little Mark II / Combo Head), 6.3 A 250V T 5x20 (Little Mark 250)
JAPAN	10A 250V T 5x20 (Little Mark II / Combo Head), 6.3 A 250V T 5x20 (Little Mark 250)

3.4 COMBOS: TECHNICAL DETAILS

COMBO SERIES	CMD 102P	CMD 103H	MINI CMD 121P	CMD 121H	MINI CMD 151P	CMD 151P
Speaker Size (inches)	2x10”	3x10”	1x12”	1x12”	1x15”	1x15”
Tweeter	Piezo Tweeter	1” HF Comp. Driver	Piezo Tweeter	1” HF Comp. Driver	Piezo Tweeter	None
Crossover Frequency	3.5 kHz	3.5 kHz	3.5 kHz	3.5 kHz	3.5 kHz	None
CAB Power Handling (AES Standard)	400W RMS	600W RMS	400W RMS	400W RMS	400W RMS	400W RMS
Frequency Response	40Hz to 18kHz	40Hz to 20kHz	45Hz to 18kHz	45Hz to 20kHz	40Hz to 18kHz	40Hz to 18kHz
Cabinet Sensitivity (dB SPL)	101	103	99	99	100	100
Cabinet Impedance	8Ω	6Ω	8Ω	8Ω	8Ω	8Ω
Reflex	Rear	Rear	Rear	Rear	Rear	Rear
Weight kg.	20	28.7	13.3	17.9	18.5	21.2
Weight lbs.	44.09	63.27	29.32	39.46	40.79	46.74
Width mm	594	594	390	390	464	464
Width inches	23.39	23.39	15.35	15.35	18.27	18.27
Height mm	479	699	432	599	464	557
Height inches	18.86	27.52	17.01	23.58	18.27	21.93
Depth mm	475	480	357	464	480	480
Depth inches	18.70	18.90	14.06	18.27	18.90	19.90
Preamp	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state
Power Amp 300 8Ω / 500 4Ω	Analog	Analog	Analog	Analog	Analog	Analog
Power Supply	All models are equipped with custom-designed Markbass digital power supplies					

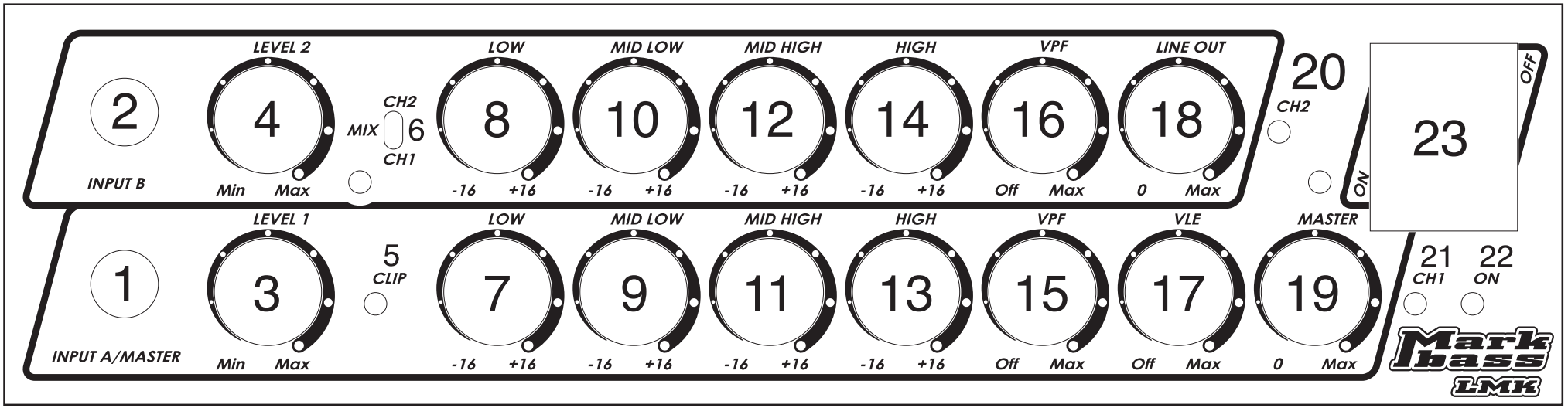
3.5 LITTLE MARK II/LITTLE MARK 250/COMBO HEAD SCHEMATICS



4. LMK PRODUCT OVERVIEW

The Markbass LMK is a high-quality two-channel bass amplifier with a solid-state preamp and an analog power amp, which delivers 500W of power into a 4 ohm cabinet, or 300W into an 8 ohm cabinet.

4.1 LMK FRONT PANEL



INPUTS

The LMK's unique two-channel design enables you to use either two different basses (each with its own channel), or two different channels for one bass. Both input jacks can be used for both passive and active basses. When using one bass, plug it into Input A/Master (1). Using the channel switch or the footswitch, you will be able to choose which channel (and corresponding level, EQ and filter settings) you run it through. When using two basses, plug one into each input — the bass in Input A (1) will automatically run through Channel 1, and the bass in Input B (2) will automatically run through Channel 2. This is a very practical solution for bassists who switch often between two very different basses, for example an acoustic and an electric.

CHANNEL SWITCH

When one bass is plugged into the LMK, the channel switch allows you to choose whether your signal is routed through Channel 1, Channel 2, or both ("mix"). If two basses are plugged in, this switch allows you to effectively mute the unused bass; or, if you can play both basses at once, simply set the SWITCH (6) to "mix"! Blue indicator LEDs (CH1) (21) and (CH2) (20) on the right side of the front panel illuminate to show which channel is being used. When the footswitch is plugged into the rear panel, then front panel channel switch is disabled.

LEVEL 1, LEVEL 2 and MASTER

There are three knobs on the front panel of the LMK that control volume. LEVEL 1 (3) is the gain control for INPUT A (1), LEVEL 2 (4) is the gain control for INPUT B (2), and the MASTER (19) control is the overall output volume of the amp. The LEVEL (3) (4) (gain) controls determine how much signal is passed through the preamp stage of the unit, which includes equalization and the effects loop. The MASTER (19) volume regulates how much output comes out of the power amp into your cabinet. If playing through the amp causes the blue "CLIP" (5) light to turn on at all, you should turn down the LEVEL control of the channel being used, otherwise your signal may distort. When you first plug into the amp, start with the LEVEL (3) (4) and MASTER (19) controls set at their lowest levels, in other words turned all the way counter-clockwise. Then, turn your instrument's volume up to its full level and play as hard as you do in your most aggressive moments, and turn up the LEVEL control until the blue light starts illuminating. Next, back off on the LEVEL just enough so that the light stays off as you play. This method will result in the optimal gain setting for the bass you're playing. Different basses have different output levels, mostly depending on their pickups—and in the case of active basses, the instrument's onboard preamp and EQ settings. Once you've set the LEVEL controls so that the volumes of your two basses are even, use your MASTER (19) knob to control the overall volume.

LINE OUT

This LINE OUT (18) knob controls the volume level of the rear LINE OUT XLR (27), which is connected to the mixing console in live or studio situations.

EQUALIZATION

Markbass amps are designed to faithfully reproduce the natural sound of your bass. If you have a good instrument, very little equalization (EQ)-if any-should be required. Bass guitars produce a surprisingly wide range of frequencies — from extremely low frequencies that are more felt than heard, to extremely high frequencies that pass through your cabinet's tweeter and are barely audible to the human ear. As you experiment with your EQ settings, you will notice that all the different frequency ranges play essential roles in making up your bass tone:

LOW frequencies constitute music's sonic foundation — they give power to your sound, physically resonating your listeners' bodies (and yours!), sometimes even causing people to move and dance!

LOW MIDs ("MID LOW" or Mid Frequency Low) make your bass sound loud, projecting the sound over long distances, "filling the room."

HIGH MIDs ("MID HIGH" or Mid Frequency High) convey the pitch of the notes that you play. Clarity of this range ensures that the melodies in your bass lines are heard. If detail is missing in this range, your melodic contribution to the music will suffer.

HIGH frequencies carry the percussive content of your playing: the attack of your notes, the sound of your finger or pick passing over the string, fret noise, and in the case of slap bass, the "tick" noise produced when the strings bounce off the frets. If any one of these frequency ranges is neglected or poorly represented by your amp, you are not hearing an accurate representation of the sound that your bass is generating. Since the LMK has been designed to give you clear, detailed and musical sound at all frequencies, when the amp is set "flat — with all EQ knobs at 12 o'clock — you should hear a very true mirror of the sound of your bass.

However, the following circumstances will require you to use equalization:

1. The signal from your bass is lacking output level in one of the frequency ranges described above.
2. The room or venue you're playing in has poor acoustics and excites a certain frequency. For example, if you're playing on a hollow stage, certain low frequencies may sound disproportionately loud or out-of-control, and you may notice that every time you play a certain note, it sounds much louder than all the others. In these cases the offending frequency needs to be identified and reduced.
3. You're seeking to alter the basic sound of your instrument in order to achieve a particular musical effect.

Equalization should be treated as fine-tuning. Spend some time listening to your bass through the amp with all the EQ controls in the neutral (12 o'clock) position before you start changing the settings. You're likely to need little or no equalization!

However, if and when equalization is required, you will find this amp's EQ to be powerful and impressively detailed.

The LOW EQ (7) (8) control on the LMK is set to a center frequency of 40 Hz. This means that it either boosts or cuts the volume of the frequencies around 40 Hz, to a maximum of 16 decibels.

The MID LOW EQ (9) (10) control boosts or cuts the frequencies around 360 Hz, by as much as 16 decibels.

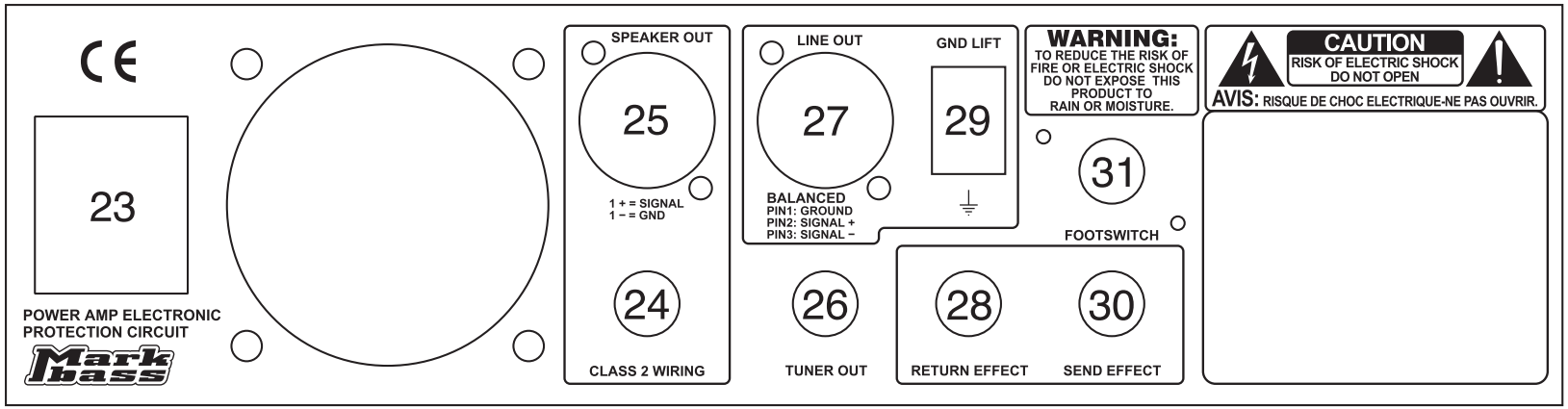
The MID HIGH EQ (11) (12) control boosts or cuts the frequencies around 800 Hz, by as much as 16 decibels.

The HIGH EQ (13) (14) control boosts or cuts the frequencies around 5 kHz, by as much as 16 decibels. The Q on this EQ (the range of frequency controlled) is quite wide, spanning from about 2 kHz to about 30 kHz.

VLE and VPF FILTERS

The LMK amplifier features two magic knobs that alter the equalization of your bass signal with specially formulated musical results. Most players use these controls more than the EQ since they were designed specifically to meet the practical needs of bassists. The VLE (17) (Vintage Loudspeaker Emulator) filters out high frequencies to give you a mellower, less modern sound. As you turn the knob clockwise, you will find that a wider and wider range of high frequencies gets cut (see page 21 for a graph of this filter's function). This EQ effect is especially useful for acoustic and older styles of music. The VPF (15) (16) (Variable Pre-shape Filter) boosts lows (around 35 Hz) and highs (around 10 kHz), and cuts mids at 380 Hz. This filter has very powerful uses for rock music and is also a favorite of many slap bass players (see page 21 for a graph of this filter's function). Again, we recommend you start off with these filters in the off position, and dial them in gradually to discover what effect they have. Explore them separately first — but you may find that using both in combination can lead to some very appealing and musical results! Note that Channel 1 features both the VLE (15) and VPF (17) filters, whereas Channel 2 only includes the VPF (16).

4.2 LMK REAR PANEL



SPEAKER OUT

The LMK can be connected to one or two speaker cabinets. The high-quality Neutrik SPEAKON COMBO jack accepts either a speakon (25) or a 1/4" speaker cable, and the second SPEAKER JACK (24) accepts only 1/4" cables. Do not use instrument cables. The minimum load is 4 ohms. If you connect two cabinets, the impedance of each cab must be 8 ohms or higher. If you connect a 4 ohm cabinet, you cannot connect a second cabinet. The LMK delivers 300W of power into an 8 ohm cabinet, or 500W into a 4 ohm cabinet.

Note that this is a two channel amp, but it is not a "stereo" amp — there are not two discrete outputs for each channel input. If you connect two speaker cabinets they will each receive the same signal.

LINE OUT

The balanced XLR (27) output allows you to connect your amplifier directly to a mixing console (either in live situations or in a recording studio) without the need of a DI box. Simply connect a standard XLR cable from this output to the soundboard/mixing console, or a snake connected to the board/console. If the soundman/engineer needs more or less signal from you, simply turn the front panel LINE OUT (18) control up or down as necessary.

The line out signal is post-EQ and post-filters (which means that the signal that you send to the sound engineer is affected by your EQ and filter settings).

GROUND LIFT

Occasionally when you're playing live and using the LINE OUT (18), the soundman will detect a hum from your amp's signal. This is almost always due to a grounding problem related to your power source; you will likely eliminate this hum simply by flipping the GROUND LIFT (29) switch.

TUNER OUT

The TUNER OUT (26) is an unbalanced signal that can be sent to a tuner, allowing you to tune as you play without passing your signal through pedals, which can degrade the quality of your signal. You can also use this output to send your signal on to another amp, or any kind of recording unit that doesn't require a balanced signal.

EFFECT SEND AND RETURN

If you use effect pedals or rack gear, you can route them through the SEND EFFECT (30) and RETURN EFFECT (28) on the rear panel of the amp. The effects loop is wired in parallel — this means that if something happens to your effects chain (a battery dies or a cable gives out, for example) while you're playing, you will not lose your main signal. If desired, however, the effects loop can be easily modified by authorized service personnel to operate in series.

Important Note: The effects loop applies only to channel 1, and does not alter the channel 2 signal.

FOOTSWITCH

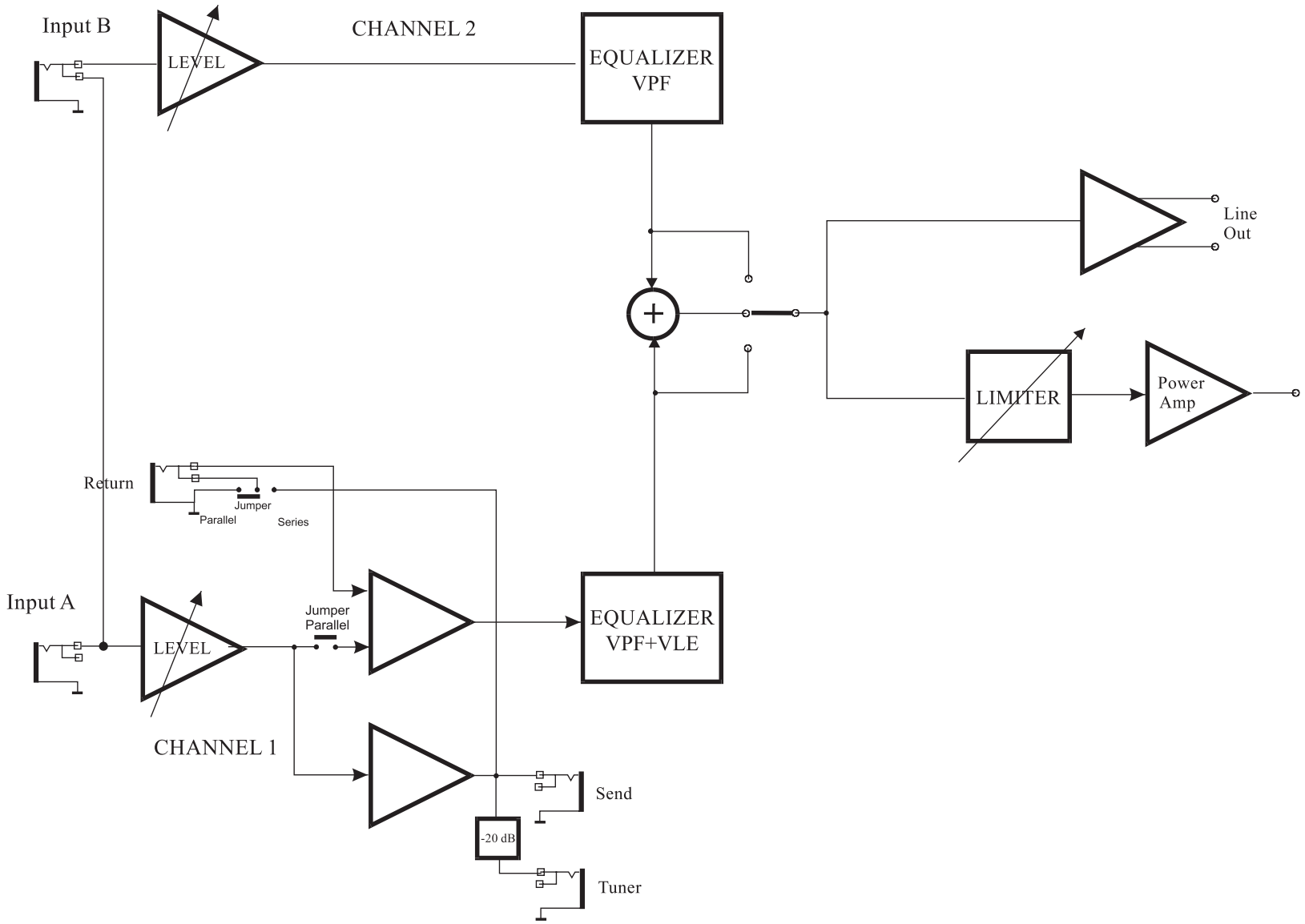
The LMK's optional FOOTSWITCH allows you to have full control over channel selection (see) "CHANNEL SWITCH" (6) in front panel section). Each switch is an on/off switch: Channel 1 (on/off) and Channel 2 (on/off). To switch channels with one click (assuming you've turned one channel on and the other off), step on both buttons simultaneously. Keep an eye on the front panel "CH1" (21) and "CH2" (20) LEDs to make sure you have the right channel selected. When both channels are turned off, your signal will still pass to your tuner, should you have one plugged into the rear panel.

4.3 LMK TECHNICAL DETAILS

INPUTS	
INPUT A/MASTER	impedance: 500 Kohm, max. voltage: 15 Vpp
INPUT B	impedance: 500 Kohm, max. voltage: 15 Vpp
RETURN EFFECT	impedance: 22 Kohm, max. voltage: 10 Vpp
CONTROLS	
LEVEL (Gain) CH1	–80 dB to +23 dB range
LEVEL (Gain) CH2	–80 dB to +26 dB range
LINE OUT	level control on front panel
GROUND LIFT	switch on rear panel
MASTER VOLUME	
EQUALIZATION (CH1)	
LOW	center frequency: 40 Hz; level: ±16 dB
MID LOW	center frequency: 360 Hz; level: ±16 dB
MID HIGH	center frequency: 800 Hz; level: ±16 dB
HIGH	center frequency: 5 kHz; level: ±16 dB
VLE (Vintage Loudspeaker Emulator)	max cut range: 250 Hz – 20 kHz
VPF (Variable Pre-shape Filter)	center frequency 380 Hz (cut)
EQUALIZATION (CH2)	
LOW	center frequency: 40 Hz; level: ±16 dB
MID LOW	center frequency: 360 Hz; level: ±16 dB
MID HIGH	center frequency: 800 Hz; level: ±16 dB
HIGH	center frequency: 5 kHz; level: ±16 dB
VPF (Variable Pre-shape Filter)	center frequency 380 Hz (cut)
OUTPUTS	
SEND EFFECT	unbalanced, max. voltage 20 Vpp (pre-EQ)
TUNER OUT	unbalanced, max. voltage 25 Vpp
LINE OUT	balanced XLR, max. voltage 10 Vpp
SPEAKER OUT	“speakon / 1/4” (x2)”

OTHER	
HEIGHT	2.8 in. / 7.1 cm
DEPTH	10.1 in. / 25.6 cm
WIDTH	10.87 in. / 27.6 cm (can be extended to standard rack width with optional rack ears)
WEIGHT	6.39 lbs / 2.9 kg
OUTPUT POWER	300W RMS @ 8 ohm, 500W RMS @ 4 ohm
POWER REQUIREMENT	100V; 120V; 230V; 240V 50/60Hz (Voltage is factory preset according to region of sale and can be modified by authorized Markbass service technicians)
FUSE	
EUROPE	4A 250V T 5x20
AUSTRALIA/UK	4A 250V T 5x20
USA/CANADA	8A 250V T 5x20
JAPAN	10A 250V T 5x20

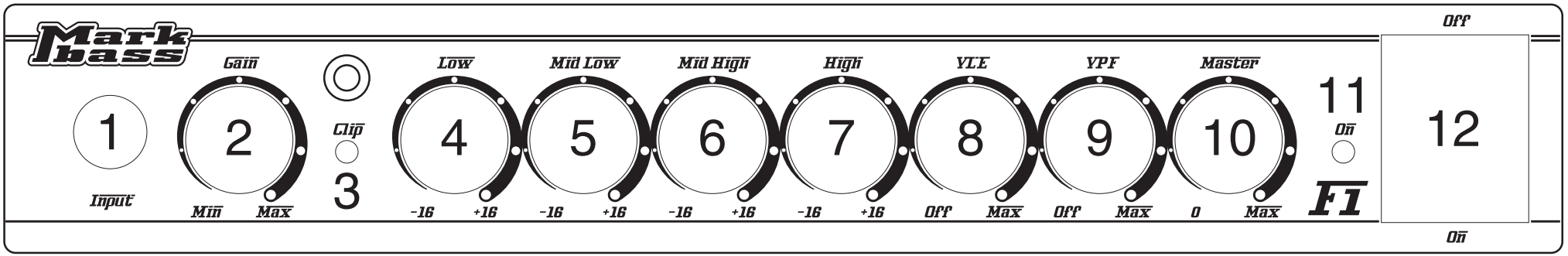
4.4 LMK SCHEMATICS



5. F1 PRODUCT OVERVIEW

The F1 is a high-quality bass amplifier with a solid-state preamp and a digital power amp, which delivers 500W of power into a 4 ohm cabinet, or 300W into an 8 ohm cabinet.

5.1 F1 FRONT PANEL



INPUTS

The 1/4" INPUT JACK (1) can be used for both passive and active basses.

GAIN and MASTER

There are two knobs on the front panel of the F1 that control the volume of your bass. The GAIN (2) control determines how much signal is passed through the preamp stage of the unit, which includes equalization and the effects loop. The MASTER (10) volume regulates how much output comes out of the power amp into your cabinet.

If playing through the amp causes the blue CLIP (3) light to turn on at all, you should turn down the GAIN (2) control to avoid distortion.

When you first plug into the amp, start with the GAIN (2) and MASTER (10) controls set at their lowest levels, in other words turned all the way counter-clockwise. Then, turn your instrument's volume up to its full level and play as hard as you do in your most aggressive moments, and turn up the GAIN (2) control until the blue light starts illuminating. Next, back off on the GAIN (2) just enough so that the light stays off as you play. This method will result in the optimal gain setting for the bass you're playing. Different basses have different output levels, mostly depending on their pickups—and in the case of active basses, the instrument's onboard preamp and EQ settings.

Once you've set the GAIN (2) level, use your MASTER (10) knob to control the volume of your bass.

EQUALIZATION

Markbass amps are designed to faithfully reproduce the natural sound of your bass. If you have a good instrument, very little equalization (EQ)—if any—should be required. Bass guitars produce a surprisingly wide range of frequencies—from extremely low frequencies that are more felt than heard, to extremely high frequencies that pass through your cabinet's tweeter and are barely audible to the human ear. As you experiment with your EQ settings, you will notice that all the different frequency ranges play essential roles in making up your bass tone:

LOW frequencies constitute music's sonic foundation—they give power to your sound, physically resonating your listeners' bodies (and yours!), sometimes even causing people to move and dance!

LOW MIDs ('MID LOW' or Mid Frequency Low) make your bass sound loud, projecting the sound over long distances, filling the room.
HIGH MIDs ('MID HIGH' or Mid Frequency High) convey the pitch of the notes that you play. Clarity of this range ensures that the melodies in your bass lines are heard. If detail is missing in this range, your melodic contribution to the music will suffer.
HIGH frequencies carry the percussive content of your playing: the attack of your notes, the sound of your finger or pick passing over the string, fret noise, and in the case of slap bass, the 'tick' noise produced when the strings bounce off the frets.

However, the following circumstances will require you to use equalization:

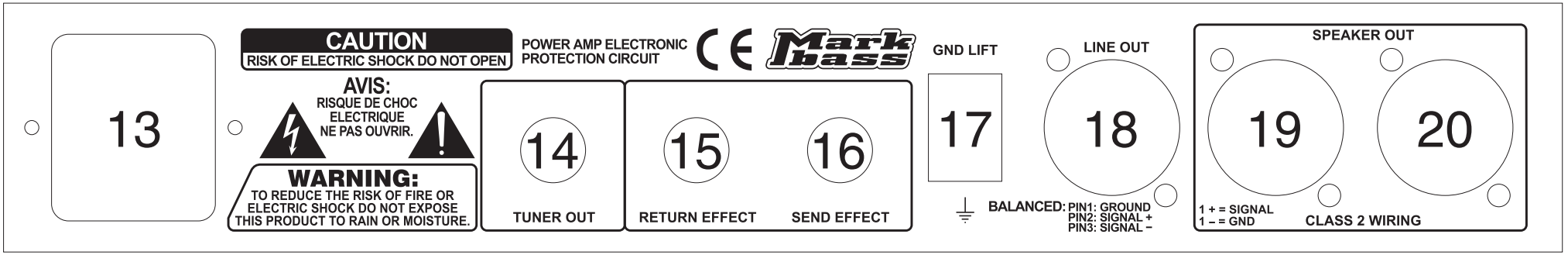
1. The signal from your bass is lacking output level in one of the frequency ranges described above.
2. The room or venue you're playing in has poor acoustics and excites a certain frequency. For example, if you're playing on a hollow stage, certain low frequencies may sound disproportionately loud or out-of-control, and you may notice that every time you play a certain note, it sounds much louder than all the others. In these cases the offending frequency needs to be identified and reduced.
3. You're seeking to alter the basic sound of your instrument in order to achieve a particular musical effect.

Equalization should be treated as fine-tuning. Spend some time listening to your bass through the amp with all the EQ controls in the neutral (12 o'clock) position before you start changing the settings. You're likely to need little or no equalization!

However, if and when equalization is required, you will find this amp's EQ to be powerful and impressively detailed.
The LOW (4) EQ control is set to a center frequency of 40 Hz. This means that it either boosts or cuts the volume of the frequencies around 40 Hz, to a maximum of 16 decibels.
The LOW-MID (MID LOW) (5) EQ control boosts or cuts the frequencies around 360 Hz, by as much as 16 decibels.
The HIGH-MID (MID HIGH) (6) EQ control boosts or cuts the frequencies around 800 Hz, by as much as 16 decibels.
The HIGH (7) EQ control boosts or cut the frequencies around 5 KHz, by as much as 16 decibels. The Q on this EQ (the range of frequencies controlled) is quite wide, spanning from about 2 kHz to about 30 kHz.

VLE and VPF FILTERS
Markbass amplifiers feature two magic knobs that alter the equalization of your bass signal with specially formulated musical results. Most players use these controls more than the EQ since they were designed specifically to meet the practical needs of bassists.
The VLE (8) (Vintage Loudspeaker Emulator) filters out high frequencies to give you a mellower, less modern sound. As you turn the knob clockwise, you will find that a wider and wider range of high frequencies gets cut (see page 21 for a graph of this filter's function).
This EQ effect is especially useful for acoustic and older styles of music.
The VPF (9) (Variable Pre-shape Filter) boosts lows (around 35 Hz) and highs (around 10 kHz), and cuts mids at 380 Hz. This filter has very powerful
uses for rock music and is also a favorite of many slap bass players (see page 21 for a graph of this filter's function).
We recommend you start off with these filters in the off position, and dial them in gradually to discover what effect they have. Explore them separately first but you may find that using both in combination can lead to some very appealing and musical results!

5.2 F1 REAR PANEL



SPEAKER OUT
The F1 can be connected to one or two speaker cabinets. The high-quality Neutrik SPEAKON COMBO jack (19-20) accepts either a SPEAKON or a 1⁄4” speaker cable. Do not use instrument cables.
The minimum load is 4 ohms. If you connect two cabinets, the impedance of each cab must be 8 ohms or higher. If you connect a 4 ohm cabinet, you cannot connect a second cabinet.
The F1 delivers 300W of power into an 8 ohm cabinet, or 500W into a 4 ohm cabinet or two 8 ohm cabinets.

LINE OUT
This balanced XLR (18) output sends a balanced signal to the mixing console or snake in live and studio situations. The line out signal is post-EQ, post-filters and post-effects loop (which means that the signal that you send to the sound engineer is affected by your EQ, filter and effect settings), but can be easily modified by a qualified technician to be pre-EQ if desired.

GROUND LIFT
Occasionally when you’re playing live and using the LINE OUT (18), the soundman will detect a hum from your amp’s signal. This is almost always due to a grounding problem related to your power source; you will likely eliminate this hum simply by flipping the GROUND LIFT (17) switch.

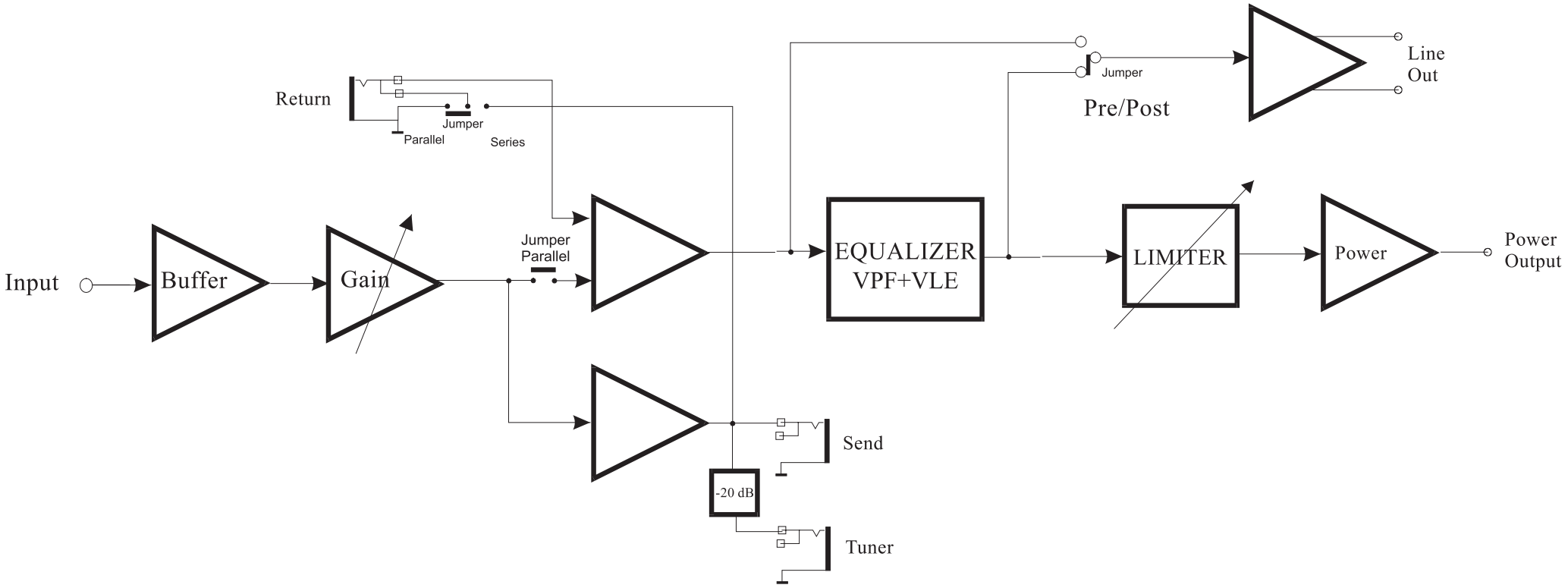
TUNER OUT
The TUNER OUT (14) is an unbalanced signal that can be sent to a tuner, allowing you to tune as you play without passing your signal through pedals, which can degrade the quality of your signal. You can also use this output to send your signal on to another amp, or any kind of recording unit that doesn’t require a balanced signal.

EFFECT SEND AND RETURN
If you use effect pedals or rack gear, you can route them through the SEND EFFECT (16) and RETURN EFFECT (15) on the rear panel of the amp. The effects loop is wired in parallel—this means that if something happens to your effects chain (a battery dies or a cable gives out, for example) while you’re playing, you will not lose your main signal. If desired, however, the effects loop can be easily modified by authorized service personnel to operate in series.

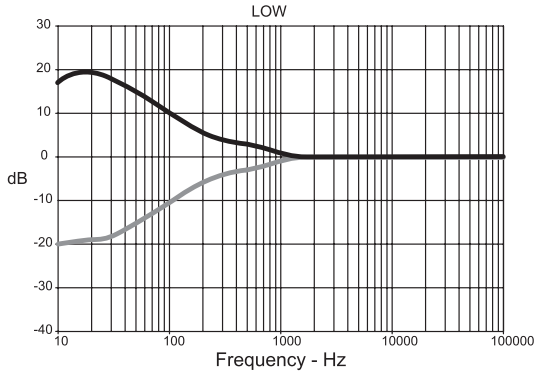
5.3 F1 TECHNICAL DETAILS

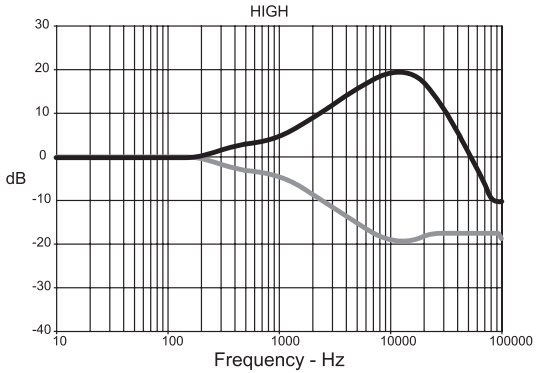
INPUTS	
INPUT	impedance: 500 Kohm, max. voltage: 15 Vpp
RETURN EFFECT	impedance: 22 Kohm, max. voltage: 25 Vpp
CONTROLS	
GAIN	–80 dB to +25 dB range
GROUND LIFT	switch on rear panel
MASTER VOLUME	
EQUALIZATION	
LOW	center frequency: 40 Hz; level: ±16 dB
MID LOW	center frequency: 360 Hz; level: ±16 dB
MID HIGH	center frequency: 800 Hz; level: ±16 dB
HIGH	center frequency: 10 kHz; level: ±16 dB
VLE (Vintage Loudspeaker Emulator)	max cut range: 250 Hz – 20 kHz
VPF (Variable Pre-shape Filter)	center frequency 380 Hz (cut)
OUTPUTS	
SEND EFFECT	unbalanced, max. voltage 20 Vpp
TUNER OUT	unbalanced, max. voltage 25 Vpp
LINE OUT	balanced XLR, max. voltage 10 Vpp
SPEAKER OUT	“speakon / 1/4” (x2)”
OTHER	
HEIGHT	1.73 in. / 4,4 cm
DEPTH	10.04 in. / 25,5 cm
WIDTH	10.87 in. / 27,6 cm (can be extended to standard rack size with optional rack ears)
WEIGHT	4.63 lbs. / 2,1 kg.
OUTPUT POWER	500W RMS @ 4 ohms, 300W RMS @ 8 ohms
POWER REQUIREMENT	100V; 120V; 230V; 240V 50/60Hz (Voltage is factory preset according to region of sale and can be modified by authorized Markbass service technicians)
FUSE	
230V	4A 250V T 5x20
240V	3.15A 250V T 5x20
120V	6.3A 250V T 5x20
100V	8A 250V T 5x20

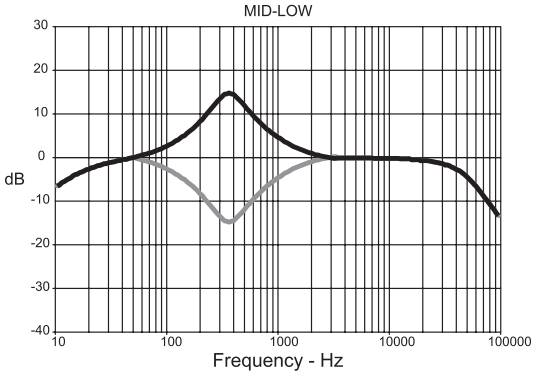
5.4 F1 SCHEMATICS

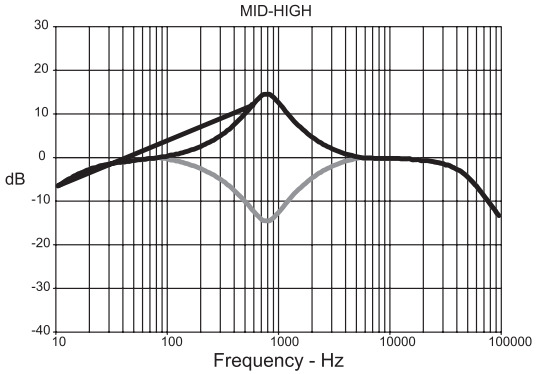


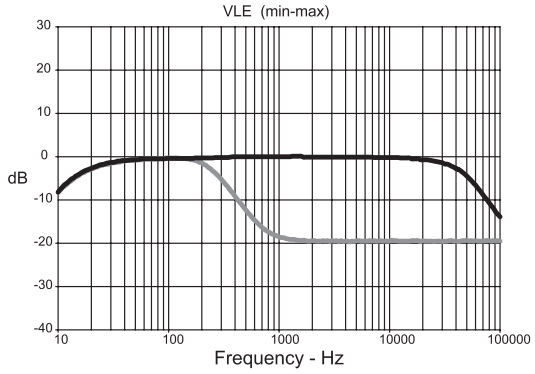
6. LITTLE MARK II/LITTLE MARK 250/COMBO HEAD/LMK/F1 EQ AND FILTER GRAPHS

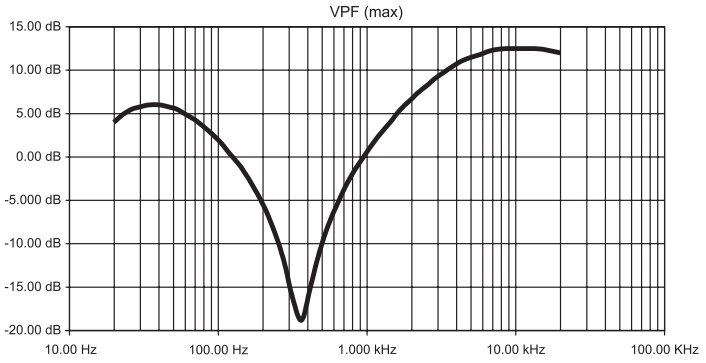


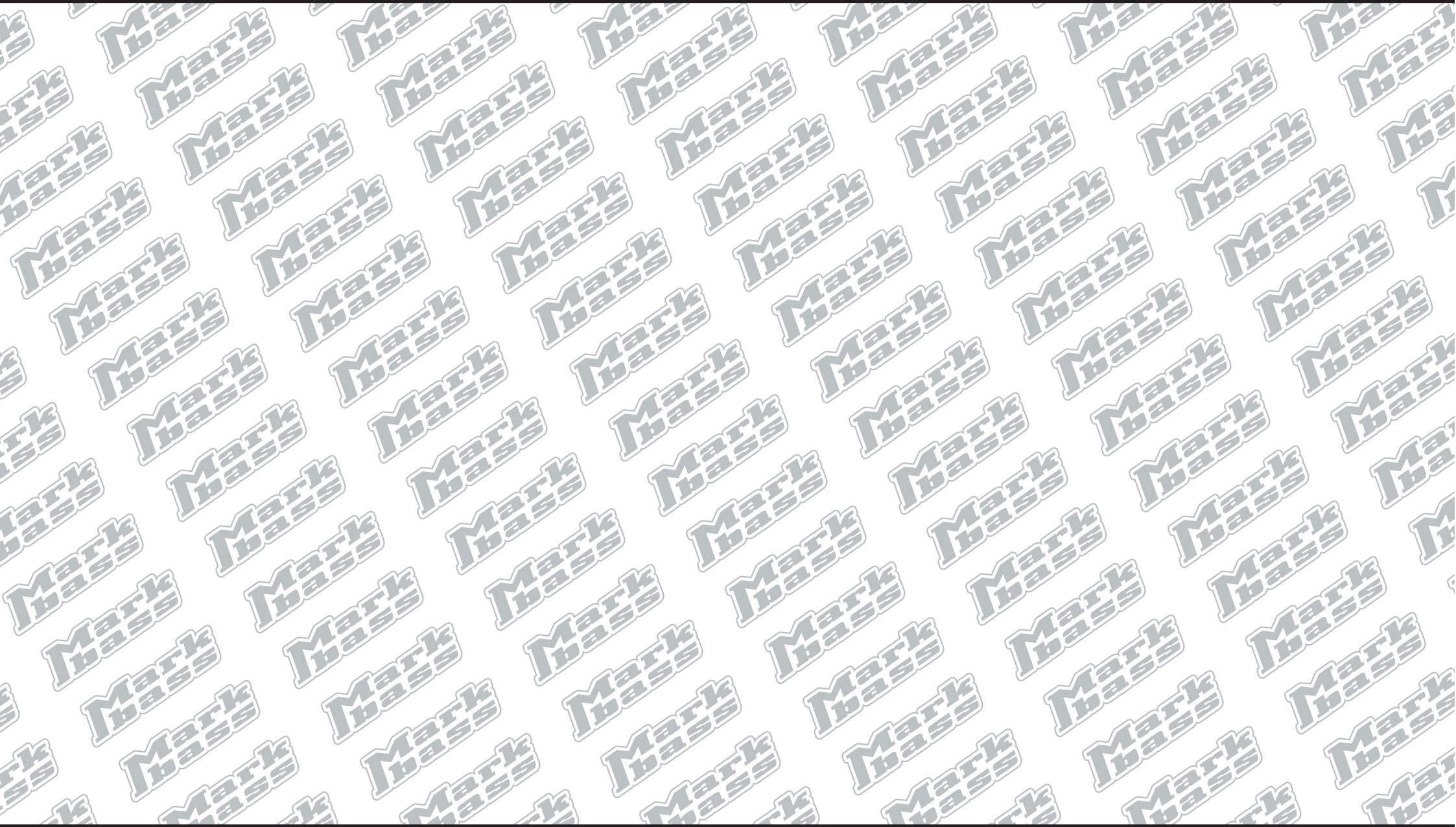


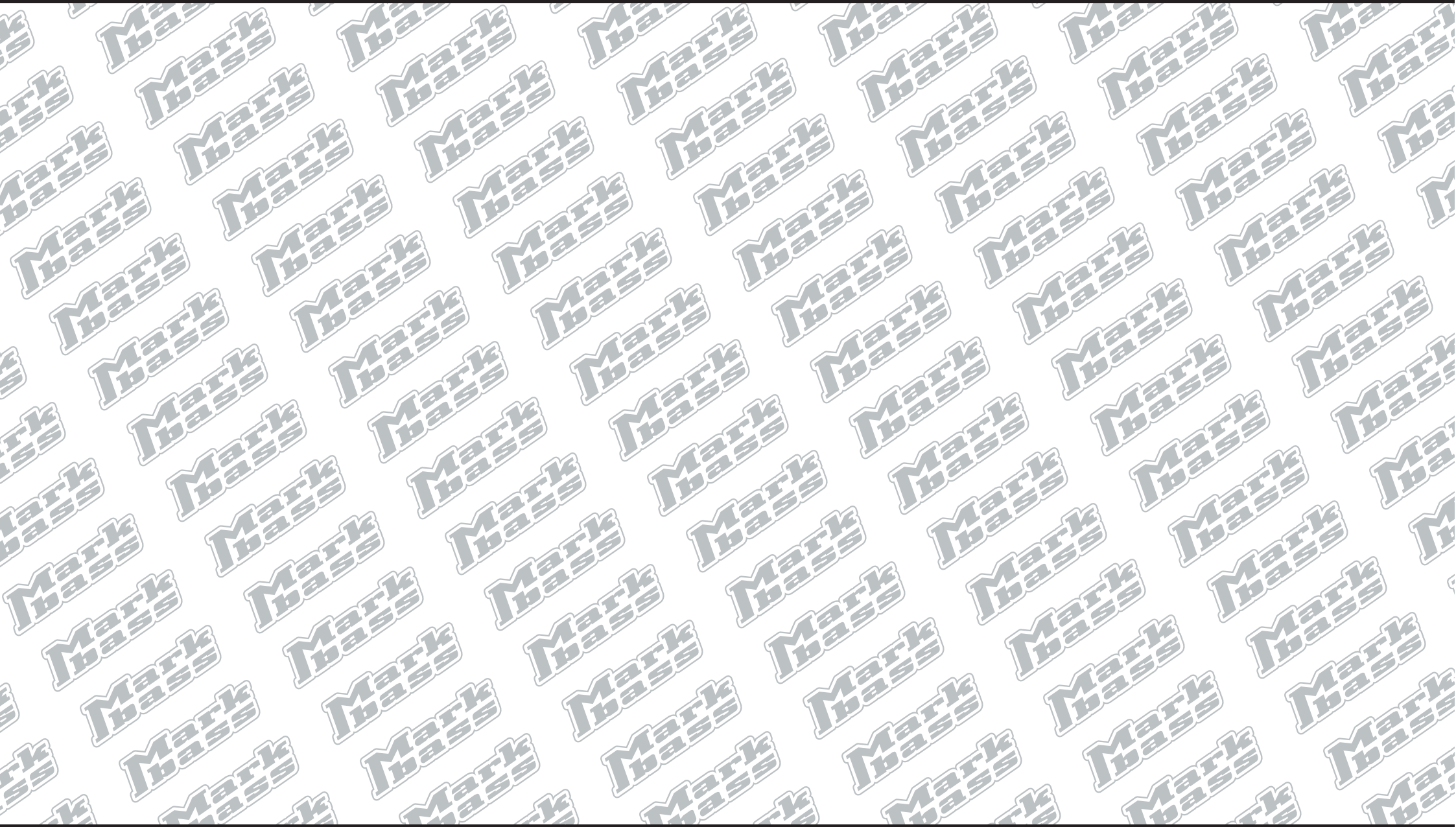









Mark bass


Mark bass

Product specifications are subject to change without notice

Mark bass

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