Supernova

OPERATING INSTRUCTIONS **GB**

EC DECLARATION OF CONFORMITY

We, Koch Guitar Electronics, Neonweg 27, 3812RG Amersfoort, The Netherlands, declare under our sole responsibility that the product:

Supernova *Guitar Amplifier*

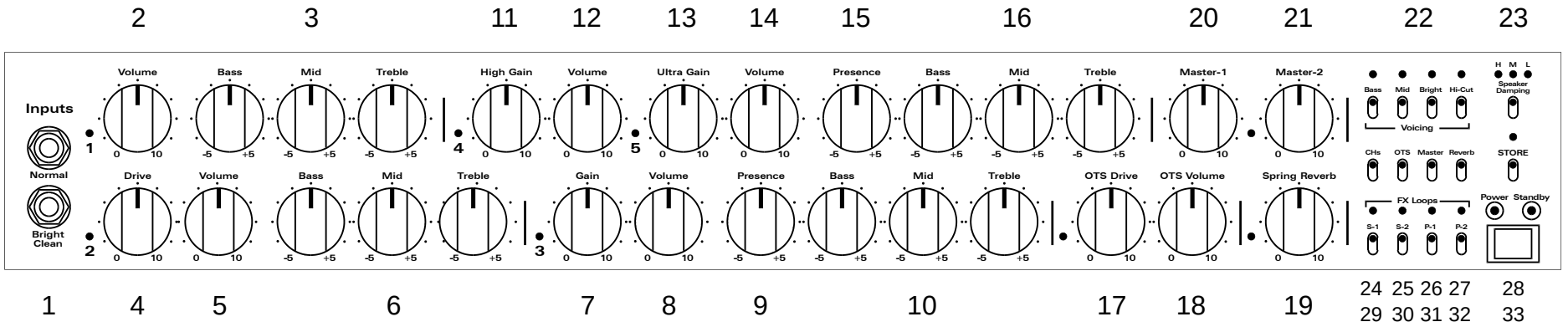
To which this declaration relates is in conformity with the following harmonized standards:

* EN 50081-1 [1991]	Electromagnetic compatibility. Generic emission standard. Part 1 : residential, commercial and light industry;
* EN 50082-1 [1991]	Electromagnetic compatibility. General immunity standard. Part 1 : residential, domestic and light industrial environment;
* EN 60065-1 [1993]	Household electronic apparatus Part 7 : Heating under normal operating conditions
* EN 60335-1 [1988]	Safety of household and similar electrical appliances. Part 1 : general requirements

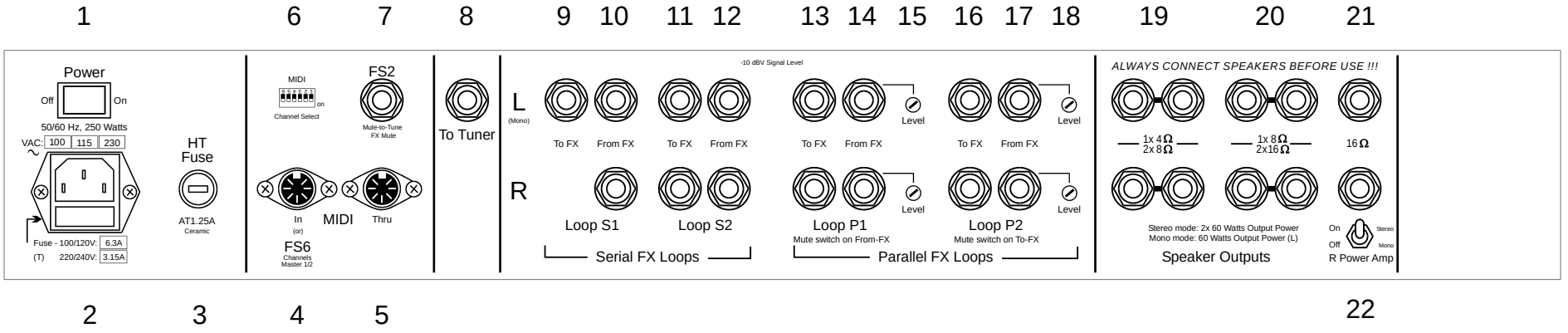
following the provisions of Council Directive 98/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility and the provisions of Council Directive 73/23/EEC on the approximation of the laws of the Member States relating to low voltage and electrical safety.

Amersfoort, 1 December 2007

Dolf Koch



MODEL 6060



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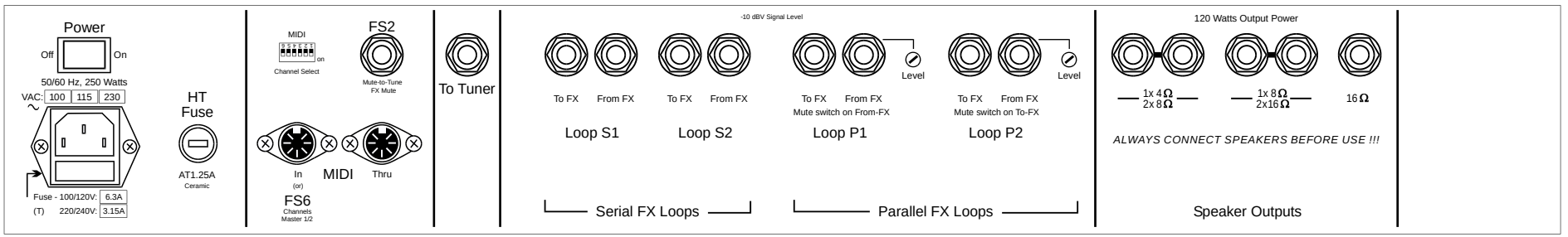


E N G L I S H

Thank you for choosing the Supernova from KOCH. You now own a "state-of-the-art" all-tube guitar amplifier of the highest quality. The Supernova has been designed and built by people who - from their own experience as musicians - take guitar sound and quality very seriously. That is why this product was designed and built with the utmost care in order to meet all professional standards. Our goal was not only to design an amp which sounds fantastic and is easy to operate, but also to build it in such a way that it will serve you loyally for many years to come.
Please take your time to read this manual carefully before you switch on the Supernova and also please fill in the warranty card and mail it. Thanks and lots of success with your new Supernova!

CAUTION:

* **BEFORE PUTTING INTO OPERATION READ THESE OPERATING INSTRUCTIONS CAREFULLY.**
* **NO USER SERVICEABLE PARTS INSIDE.**
* **REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.**

WARNING:

* **TO REDUCE THE RISKS OF ELECTRICAL SHOCK, DO NOT REMOVE THE COVER.**
* **TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE AMPLIFIER TO RAIN OR MOISTURE.**
* **THIS APPARATUS MUST BE EARTHED.**
* **TUBES ARE HOT. DO NOT TOUCH DURING OPERATION.**

FRONT PANEL FUNCTIONS

[1] INPUTS

NORMAL - Input for standard instruments, e.g. guitars with single-coil pickups.

BRIGHT CLEAN - Input for high-output instruments, e.g. guitars with humbucker pickups. This input has 6dB gain reduction to prevent overload and a filter which compensates guitar cable losses by boosting the high frequencies as of 3Khz. (Due to their higher coil impedance, humbucker pick-ups suffer more from cable losses than single-coils, which may result in lack of sparkle in the clean sound)

NOTE: The BRIGHT CLEAN input only changes Channel 1, the CLEAN channel, but does not affect the Channel 2-5, the distortion channels.

[2] VOLUME: Controls the volume level of Channel 1, the CLEAN channel.

[3] BASS, MID & TREBLE: Classic passive tone controls of Channel 1.

[4] DRIVE: This DRIVE knob controls the amount of distortion in Channel 2, a medium gain Pre-EQ Overdrive channel. Cleaner sound is achieved at lower settings (3 to 5), at higher settings (5 to 10) medium overdrive occurs which will produce more sustain and distortion.

[5] VOLUME: Controls the volume level of Channel 2.

[6] BASS, MID & TREBLE: Classic passive tone controls that regulate low, mid and high frequencies respectively, of Channel 2.

In this Pre-EQ Overdrive channel the tone control circuit is located before the overdrive stage, therefore it pre-shapes the overdrive tone which results in a bluesy type of distortion with lots of sweet mid-range harmonics.

[7] GAIN: This GAIN knob controls the amount of distortion in Channel 3, a medium gain Post-EQ Overdrive channel.
Cleaner sound is achieved at lower settings 3-4, at middle settings 4-6 medium overdrive occurs which will produce more sustain and distortion. At high settings 6-10 heavy overdrive occurs, adding a lots of sustain and compression.

[8] VOLUME: Controls the volume level of Channel 3.

[9] PRESENCE: Controls the amount of boost in the upper mid frequency range of Channel 3.

[10] BASS, MID & TREBLE: Classic passive tone controls of Channel 3.
In this Post-EQ Overdrive channel the tone control circuit is located after the overdrive stage, therefore it shapes the final overdrive tone which results in a more raw and rock type of distortion with lots of grind and dynamics.

[11] GAIN: This channel has four gain stages and therefore delivers lots of sustain and compression without losing dynamics.
This GAIN knob controls the amount of distortion in Channel 4. Cleaner sound is achieved at lower settings 3-4, at middle settings 4-6 medium overdrive occurs which will produce more sustain and distortion. At high settings 6-10 heavy overdrive occurs.

[12] VOLUME: Controls the volume level of Channel 4.

[13] ULTRA-GAIN: This channel has five gain stages and therefore delivers endless amounts of sustain and compression.
This ULTRA-GAIN knob controls the amount of distortion in Channel 5. Distorted sound is already achieved at low settings 2-3, at higher settings 3-5 heavy overdrive occurs which will produce a more powerful distortion. At the highest settings 5-10 ultra overdrive occurs, adding tons of power, sustain and compression.

WARNING: This Ultra-Gain channel requires a guitar with low microphonic pick-ups and sufficient screening. Otherwise squealing and/or excessive hum and noise may occur if the Ultra-Gain knob is turned above "4".

NOTE: *The GAIN and the ULTRA-GAIN controls of the Supernova are very powerful and practical 'sound-creators'. These dual controls control the amount of amplification in two amplifier stages simultaneously and combine Drive and Gain-Boost in one knob.*

[14] VOLUME: Controls the volume level of Channel 5.

[15] PRESENCE: Controls the amount of boost in the upper mid frequency range of Channel 4 and 5

[16] BASS, MID & TREBLE: Classic post-distortion passive tone controls of Channel 4 and 5.

[17] OTS DRIVE: This DRIVE knob controls the amount of distortion of the OTS circuit.

[18] OTS VOLUME: Controls the volume level of the OTS circuit.

NOTE: *OTS stands for Output Tube Saturation. The Supernova is equipped with a 0.5 Watt all-tube power amp, not for driving any speakers but pure for creating new harmonic structures. This unique feature enables you to add real tube-power-amp distortion to all your sounds, clean as well as distorted! If CH1 is on, you can create nice and musical saturation of clean tones; in CH2-5 you can really fatten up all your crunchy or even your high-gain distortion tones.*
If the OTS is activated the small tube-power-amp is placed in the signal path, like it was plugged in as an effects unit in an effects loop.

[19] REVERB: The Supernova has a built-in spring reverb unit. This knob controls the amount of the Spring Reverb signal mixed with the original dry signal.**[20] MASTER-1:** If activated, this master volume control can be preset at a lower rhythm level.

[21] MASTER-2: If activated, this master volume control can be preset at a higher solo level.

All functions described in the section below can be linked to each of the Supernova's 5 channels. They are MIDI accessible and recordable with the Store button.

[22] VOICING SWITCHES

BASS: Boosts the lowest frequencies in all channels.
MID SHIFT: Shifts the operating frequency of the Treble controls in all channels from the standard frequency of 2 KHz down to 800Hz, thus creating a very natural and musically sounding boost in the middle frequencies.

BRIGHT: Boosts the high frequencies. The effect is subtle but therefore always instantly useable without having to re-adjust the tone controls.
HI-CUT: Cuts the highest frequencies. The effect is most noticeable with distortion sounds. It removes any schratchiness and smoothens out the sound.

[23] SPEAKER DAMPING: This switch selects speaker damping between High, Medium and Low. In the H (HIGH) position the power amp damps the speaker's own cone-movement which results in a more controlled sound (compare with shock breakers of a car). In the M (MEDIUM) position the power amp's damping of the speaker is less, which results in a more open sound. In the L (LOW) position the damping is minimal which enhances the sound in the low and the high frequencies. Which option is best depends on personal taste.

[24] CHANNELS: Selects channels 1-5 as long as the FS-6 footswitch (set to Channel Switching) is **not** connected.

[25] OTS: Activates the OTS circuit **[see 17, 18]** by placing it in the signal path.

[26] MASTER: Selects Master-1 **[20]** or Master-2 **[21]**.

[27] REVERB: Activates the built-in spring reverb unit **[19]**.

[28] STORE: Stores any combinations of choices made with the switches 22-32 in a MIDI program number (1-128). When the lever is pushed down the STORE LED flashes for 2 seconds indicating that storage will be activated. After two seconds the STORE LED will light continuously indicating that storage has taken place.
When the **FS6** is connected and set to **"Channel Switching Mode"** the STORE button now only stores your current choices as default start-up setting.

NOTE: *if a stored combination of choices is changed, the STORE LED will burn on half power indicating that the choices made do not correspond with the stored data.*

NOTE: *By holding the lever of the STORE switch down while switching on the Power switch **[see back panel 1]**, all stored data can be RESET.*

[29-32] FX Loops: Activate the two serial FX loops S1 and S2, and the two parallel FX loops P1 and P2.

[33] STANDBY: This switch allows the SUPERNOVA to be placed in Standby (green LED off) or Active (green LED on) mode. In Standby mode the tubes remain hot, but the amplifier is not operational.
The green LED monitors the internal HT power supply for the tubes. If the amp is switched from the Active to the Standby mode, the green LED slowly dims indicating that the HT power supply shuts down slowly. The SUPERNOVA remains (partly) operational until the LED is completely off.

BACK PANEL FUNCTIONS

[1] POWER: This switch turns AC power on (red LED on) and off (red LED off). When the switch is off the amplifier is completely shut down.
NOTE: When switching the amplifier on, leave the Standby switch **[33]** in the "Off" position for 5-10 seconds thus allowing the tubes to heat up before switching to the Active mode.

[2] A.C. POWER

POWER CORD INPUT:
The SUPERNOVA is equipped with a worldwide power supply. It is possible to change one of three voltages, 100, 115 or 230 inside the SUPERNOVA. Either of these voltages will work worldwide with minor power differences. The SUPERNOVA will work on either 50 or 60 hertz. After changing the voltage, **make sure fuses are replaced with printed ratings on rear of amp.**

FUSE:
Both fuse and spare fuse are located within the cap of the fuse holder. Fuse sled can be removed with a screwdriver. If the fuse should fail, **it must be replaced with the same type and value in order to avoid damage to the amp and to prevent voiding the warranty.**

WARNING: Only a qualified technician should attempt an input voltage change. Personal injury or equipment damage may occur if done incorrectly.

WARNING: A voltage change or fuse replacement should only be attempted when the power cord has been disconnected from its power source.

[3] HT FUSE: This fuse protects the power supply in case of tube failure. If it blows, check for a bad power tube. If tube-failure is not the cause, the SUPERNOVA should be taken to a qualified service center for repair. If the fuse should fail, **it must be replaced with the same type and value to avoid damage to the amp and to prevent voiding the warranty.**

[4] MIDI IN / FS-6 CONNECTOR:
Provides an input for a MIDI Footcontroller or for the **KOCH FS6-SN Footswitch**.
Pin 6 & 7 of the DIN connector provide +12VDC (fused) phantom power for feeding the FS6-SN footswitch.
If a different MIDI Foot controller is used and if it is designed to accept an external +12VDC supply on pin 6 and/or 7, a special 7-pin MIDI cable must be used.

FS6-SN FOOTSWITCH
The optional FS6-SN Footswitch is equipped with six switches and is able to operate in two different modes, which can be selected with the little slide switch on the bottom side.

CH - CHANNEL SWITCHING MODE
The Six switches now have the following functions:
- Five CHANNEL switches for selecting one of the five channels.
- One SOLO/RHYTHM switch for activating the Master-1 ***[front panel 20]*** *or the Master-2* ***[front panel 21]*** *volume control.*

MIDI - SOUND SWITCHING MODE
The FS-6 now operates as a simple MIDI Foot controller. The six switches now correspond with the first six (out of 128) MIDI programs.

NOTE: *The first five switches now do NOT necessarily correspond with the five channels anymore. In this mode it is advised to think more in creating six different Sounds than selecting channels.*

[5] MIDI THRU CONNECTOR:
Provides an output for running the MIDI data through to another MIDI controlled apparatus e.g. an effects unit.
If the FS-6 Footswitch is connected and set to the CHANNEL SWITCHING MODE this output is NOT active.

[6] MIDI CHANNEL SELECTOR:
Selects each of 12 MIDI channels. See MIDI IMPLIMENTATION CHART for further details.
If all switches are in the OFF position, the SUPERNOVA receives all channels simultaneously (OMNI MODE).

[7] FS-2 JACK: Provides an input for the optional **KOCH FS2-SN Footswitch.**

FS2-SN FOOTSWITCH
The FS-SN footswitch has two switches:
- The left-hand switch is for silencing the amp except the MUTE-TO-TUNE output jack ***[8].*** *Thus providing the possibility for switching guitars or tuning your guitar silently.*
-The right-hand switch is for muting all effect signals at the same time thus providing the possibility to switch between DRY and WET.

[8] MUTE-TO-TUNE JACK: Provides an output for connecting a Guitar Tuner.

SERIAL EFFECTS LOOPS S1 AND S2:

[9, 11] TO FX (=SEND): These jacks provide a buffered output from the preamp of the SUPERNOVA and can be used to connect an external effects unit**.** These jacks must be connected with the input(s) of the effects unit(s) (see also CONNECTION DIAGRAM pages).

[10, 12] FROM FX (=RETURN): These jacks provide an input for external effects units and must be connected to the output of these units. When used they disconnect the preamp of the SUPERNOVA from the power amp.

PARALLEL EFFECTS LOOPS P1 AND P2:

If these parallel loops are used, direct signal must be taken off the effects unit's signal (for example with the effects unit's dry/wet mix control).

[13, 16] TO FX (=SEND): These jacks provide a buffered output from the preamp of the SUPERNOVA and can be used to connect external effects units. These jacks must be connected with the input(s) of the effects unit(s) (see also CONNECTION DIAGRAM pages).

[14, 17] FROM FX (=RETURN): These jacks provide an input for external effects units and must be connected to the output of these units.
The REVERB/FX MIX control allows volume adjustment of the external effects signal.

[15, 18] LEVEL: Controls the volume level of the effects signal inputted in the parallel effects loops P1 and P2.

All four FX loops (S1, S2, P1, P2) can be switched ON/OFF with the switches [29-32] at the front panel.
The serial loops S1 and S2 are relay bypassed when switched OFF.
The parallel loop P1 is relay muted on the FROM FX (return) jack when switched OFF.
The parallel loop P2 is relay muted on the TO FX (send) jack when switched OFF, thus enabling delay effect signals to fully fade out.

NOTE: The effect loops operate on a -10dBV signal level which guarantees compatibility with both instrument-level effects like floor-pedals and guitar-processors, as well as line-level effects like professional 19 inch rack mount devices.

NOTE: If connecting an effects unit to the SUPERNOVA causes hum, a ground-loop may cause it.

[19, 20, 21] SPEAKER OUTPUT JACKS: Provided for connection of speaker(s) or speaker cabinet(s) with an impedance of 1x4/2x8 ohms, **OR** 1x8/2x16 ohms, **OR** 1x16 ohms. (see also CONNECTION DIAGRAM page)

WARNING: Never play the SUPERNOVA without a speaker connected. This may cause serious damage to either the power tubes and/or the output transformer.
Always use speaker cable.

[22] STEREO/MONO SWITCH (Model 6060 only): Provided for switching the R(ight) Channel ON (STEREO) or OFF (MONO). In the OFF position the R(ight) Channel speaker outputs do not have to be connected to a speaker cabinet or a Loadbox.

POWER TUBE OPTIONS

Each type of power tube has its own distinctive sound character, therefore changing to a different type (or mix of types) of power tubes will also change the SUPERNOVA's overall sound.
Due to special bias control circuitry, the SUPERNOVA is able to accept almost any type of power tube, for example: EL34, 6CA7, 6L6, 6550, KT66, KT77, KT88, KT90 and KT100.
The SUPERNOVA is provided with two separate bias control trimmers (located inside on the PC board)

6060 STEREO VERSIONS
One trimmer is for the two left power tubes and one for the two right power tubes, therefore either one quartet (=4 matched tubes) or two duets (= 2 matched tubes) of power tubes can be used. Also different types of tubes can be used for each side, for example the two left tubes may be EL34's while the two right tubes are 6L6's or 6550's.

120 MONO VERSIONS
One trimmer is for all four power tubes, a quartet (=4 matched tubes) of power tubes must be used. Also different types of tubes can be used, for example 6L6, KT66, KT88 or 6550's.

REPLACING TUBES

- SAFETY FIRST: DISCONNECT THE POWER CORD FROM ITS POWER SOURCE AND LET HOT TUBES COOL.
- CHECK THE 'TUBE LOCATION DIAGRAM' ON THE CHASSIS FOR THE CORRECT TYPE NUMBERS AND LOCATIONS.
- REPLACE TUBES ONLY WITH ORIGINAL KOCH HIGH QUALITY TUBES. [IF OTHER TUBES ARE USED THE WARRANTEE OBLIGATION EXPIRES]

NOTE: Always have the amp rebiased after replacing the power tubes. Biasing instructions can be found inside the amp. Rebiasing the amp is not necessary only if KOCH power tubes are used with the same type and bias-class number.

If you have any doubts, please take no risks and let a qualified technician do the job.

Preamp and Power tubes wear out and have to be changed from time to time to maintain the SUPERNOVA's best performance. Tubes behave like strings, they lose highs, lows and dynamics and after a period of time they have to be replaced. Exactly when is hard to say but this is an indication: if you play almost every day change tubes each year, if you play once or twice a week change tubes every 2-3 years.
Tubes rarely fail. If they are bad, these might be the symptoms:

PREAMP TUBES (ECC83, 12AX7, 7025):
- Microphonic whistling or squealing on one or both channels.
- No or low amp volume on one or more channels.
- Excessive noise on one or more channels.

POWER TUBES (EL34, 6550):
- Loud crackling that is not affected by front panel controls.
- Intermittent or regular blowing fuses.
- Weird amp 'distorting'.
- Hum.

Changing a tube is a simple and quick fix for most problems in your amp.
In case of failure, just one bad power tube can be replaced without re-biasing **only if a KOCH tube with the same type and bias-class number is used.**
If power tubes with a **different or unknown** bias-class number are used for replacement, the two inner and/or the two outer tubes have to be replaced and the amp has to be **rebiased**.
Always use a set of four (one quartet), or two sets of two (two duets) matched replacement power tube sets to maintain the amp's best performance.

Again, if you have any doubts, please take no risks and consult your dealer and/or a qualified technician.

CHECK FOR UPDATES OF THIS MANUAL AT WWW.KOCH-AMPS.COM

MIDI DIP Switch Coding

See back panel [6])

	S1	S2	S3	S4	S5	S6
OMNI	0	0	0	0	0	0
CH1	ON	0	0	0	0	0
CH2	0	ON	0	0	0	0
CH3	ON	ON	0	0	0	0
CH4	O	O	ON	0	0	0
CH5	ON	0	ON	0	0	0
CH6	0	ON	ON	0	0	0
CH7	ON	ON	ON	0	0	0
CH8	0	0	0	ON	0	0
CH9	ON	0	0	ON	0	0
CH10	0	ON	0	ON	0	0
CH11	ON	ON	0	ON	0	0
CH12	0	0	ON	ON	0	0
CH13	ON	0	ON	ON	0	0
CH14	0	ON	ON	ON	0	0
CH15	ON	ON	ON	ON	0	0
CH16	0	0	0	0	ON	0

0 = OFF

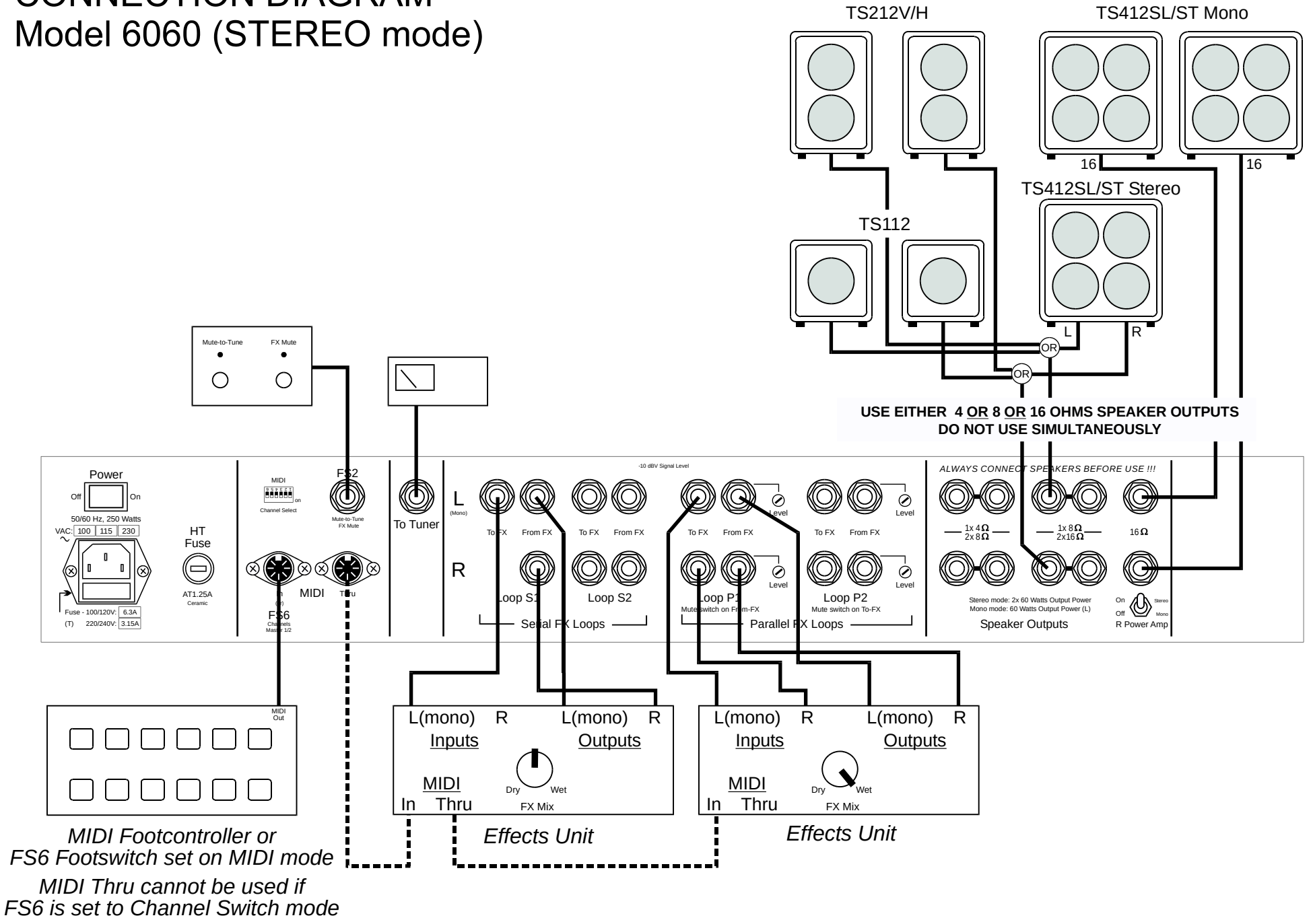
MIDI Implementation Chart

Function		Number	Recognized	Remark	
Basic Channel		OMNI 1-16	O O	Depending on dipswitches	
Program Change		0-127	O	**Preset 1-128**	
Control Change	7		O	**Mute**	Active if value smaller than 64; else off
	20		O	**OTS**	Active if value larger than 63; else off
	21		O	**Master**	Active if value larger than 63; else off
	22		O	**Reverb**	Active if value larger than 63; else off
	23		O	**FX Loop S-1**	Active if value larger than 63; else off
	24		O	**FX Loop S-2**	Active if value larger than 63; else off
	25		O	**FX Loop P-1**	Active if value larger than 63; else off
	26		O	**FX Loop P-2**	Active if value larger than 63; else off
	27		O	**Low**	Active if value larger than 63; else off
	28		O	**Mid shift**	Active if value larger than 63; else off
	29		O	**Bright**	Active if value larger than 63; else off
	30		O	**Hi-Cut**	Active if value larger than 63;else off
	31		O	**All FX Loops**	Switches off if value smaller than 64 else switches to previous value
	80		O	**Channel 1**	Switches to Ch1 if value larger than 64 else switches to previous value
	81		O	**Channel 2**	Switches to Ch2 if value larger than 64 else switches to previous value
	82		O	**Channel 3**	Switches to Ch3 if value larger than 64 else switches to previous value
	83		O	**Channel 4**	Switches to Ch4 if value larger than 64 else switches to previous value
	84		O	**Channel 5**	Switches to Ch5 if value larger than 64 else switches to previous value
	85		O	**Speaker damping low** Switches to low if value larger than 64 else switches to previous value	
	86		O	**Speaker damping mid** Switches to mid if value larger than 64 else switches to previous value	
	87		O	**Speaker damping high** Switches to high if value larger than 64 else switches to previous value	
Other messages			X	Not recognized	

O = Yes, X = No

This table provides the necessary information to set up a PC or keyboard for remote controlling all programmable functions individually (see front panel [22-32]).

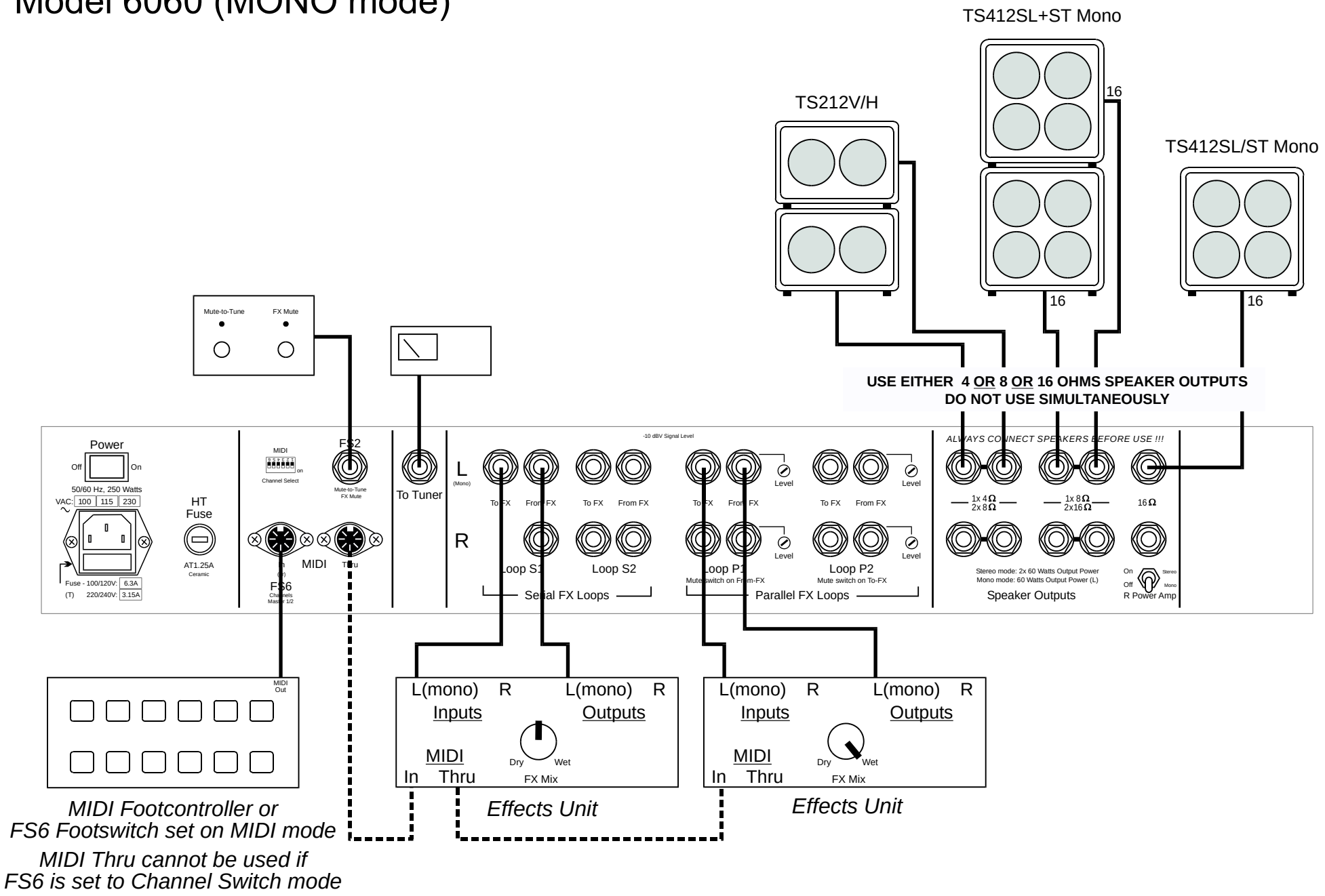
CONNECTION DIAGRAM
Model 6060 (STEREO mode)



MIDI Footcontroller or
FS6 Footswitch set on MIDI mode

MIDI Thru cannot be used if
FS6 is set to Channel Switch mode

CONNECTION DIAGRAM
Model 6060 (MONO mode)



MIDI Footcontroller or
FS6 Footswitch set on MIDI mode

MIDI Thru cannot be used if
FS6 is set to Channel Switch mode

CONNECTION DIAGRAM
Model 120