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You can read the recommendations in the user guide, the technical guide or the installation guide for YAMAHA MG12XU/MG12. You'll find the answers to all your questions on the YAMAHA MG12XU/MG12 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual YAMAHA MG12XU/MG12
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MIXING CONSOLE

MG20XU / MG20
MG16XU / MG16
MG12XU / MG12

Owner's Manual

Precautions	pages 5, 6
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Manual abstract:

Do not use this apparatus near water. Clean only with dry cloth. Do not block any ventilation openings. install in accordance with the manufacturer's instructions. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not defeat the safety purpose of the polarized or grounding-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 or 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.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. Only use attachments/accessories specified by the manufacturer. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over. Unplug this apparatus during lightning storms or when unused for long periods of time.

refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped. This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product. 2.

IMPORTANT: When connecting this product to accessories and/or another product use only high quality shielded cables. Failure to follow instructions could void your FCC authorization to use this product in the USA. 3. **NOTE:** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices.

Compliance with FCC regulations does not guarantee that interference will not occur in all * This applies only to products distributed by YAMAHA CORPORATION OF AMERICA. installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON" please try to eliminate the problem by using one of , the following measures: Relocate either this product or the device that is being affected by the interference. Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA90620

The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries. 90620 Telephone : 714-522-9011

Type of Equipment : Mixing Console Model Name : MG20XU/MG16XU/MG12XU This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received including

interference that may cause undesired operation. The wires in this mains lead are coloured in accordance with the following code: GREEN-AND-YELLOW : EARTH BLUE : NEUTRAL BROWN : LIVE As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings

identifying the terminals in your plug proceed as follows: The wire which is coloured GREEN-and-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol or colored GREEN or GREENand-YELLOW. The wire which is coloured BLUE must be

connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED. (class I hokuo) Information for Users on Collection and Disposal of Old Equipment This symbol on the products,

packaging, and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling of old products, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC. By disposing of these products correctly, you will help to save valuable resources and prevent any potential negative effects

on human health and the environment which could otherwise arise from inappropriate waste handling. For more information about collection and recycling of old products, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items. [For business users in the European Union] If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information. [Information

on Disposal in other Countries outside the European Union] This symbol is only valid in the European Union.

If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal. (weee_eu_en_01) 4 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual Precautions PA_en_2 1/2 PRECAUTIONS PLEASE READ CAREFULLY BEFORE

PROCEEDING Please keep this manual in a safe place for future reference. If you notice any abnormality • When one of the following problems occur, immediately turn off the power switch and disconnect the electric plug from the outlet. Then have the device inspected by Yamaha service personnel. - Some

object has been dropped into the device.

- There is a sudden loss of sound during use of the device. □ If this device should be dropped or damaged, immediately turn off the power switch, disconnect the electric plug from the outlet, and have the device inspected by qualified Yamaha service personnel. WARNING Always follow the basic precautions listed

below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards.



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These precautions include, but are not limited to, the following: **CAUTION** Always follow the basic precautions listed below to avoid the possibility of physical injury to you or others, or damage to the device or other property. These precautions include, but are not limited to, the following: Power supply/power cord • Do not place the power cord near heat sources such as heaters or radiators, and do not excessively bend or otherwise damage the cord, place heavy objects on it, or place it in a position where anyone could walk on, trip over, or roll anything over it. □ Only use the voltage specified as correct for the device. The required voltage is printed on the name plate of the device. □ Use only the supplied power cord/plug. If you intend to use the device in an area other than in the one you purchased, the included power cord may not be compatible. please check with your Yamaha dealer.

□ Check the electric plug periodically and remove any dirt or dust which may have accumulated on it. □ Be sure to connect to an appropriate outlet with a protective grounding connection. Improper grounding can result in electrical shock, damage to the device(s), or even fire. Power supply/power cord • When removing the electric plug from the device or an outlet, always hold the plug itself and not the cord. Pulling by the cord can damage it. □ Remove the electric plug from the outlet when the device is not to be used for extended periods of time, or during electrical storms. Location • Do not place the device in an unstable position where it might accidentally fall over. □ Do not block the vents. This device has ventilation holes at the bottom/sides to prevent the internal temperature from becoming too high. In particular, do not place the device on its side or upside down.

Inadequate ventilation can result in overheating, possibly causing damage to the device(s), or even fire. □ Do not place the device in a location where it may come into contact with corrosive gases or salt air. Doing so may result in malfunction. • Before moving the device, remove all connected cables. □ When setting up the device, make sure that the AC outlet you are using is easily accessible.

If some trouble or malfunction occurs, immediately turn off the power switch and disconnect the plug from the outlet. Even when the power switch is turned off, electricity is still flowing to the product at the minimum level. When you are not using the product for a long time, make sure to unplug the power cord from the wall AC outlet. □ When rackmounting the device, always use two or more people. Attempting to lift the device by yourself may damage your back, result in other injury, or cause damage to the device itself.

□ If the device is mounted in an EIA standard rack, carefully read the section "Precautions for Rack Mounting" on page 35. Inadequate ventilation can result in overheating, possibly causing damage to the device(s), malfunction, or even fire. do not open • This device contains no user-serviceable parts. Do not open the device or attempt to disassemble the internal parts or modify them in any way. If it should appear to be malfunctioning, discontinue use immediately and have it inspected by qualified Yamaha service personnel. Water warning • Do not expose the device to rain, use it near water or in damp or wet conditions, or place on it any containers (such as vases, bottles or glasses) containing liquids which might spill into any openings. If any liquid such as water seeps into the device, turn off the power immediately and unplug the power cord from the AC outlet. Then have the device inspected by qualified Yamaha service personnel. • Never insert or remove an electric plug with wet hands. Fire warning • Do not put burning items, such as candles, on the unit.

A burning item may fall over and cause a fire. Connections • Before connecting the device to other devices, turn off the power for all devices. Before turning the power on or off for all devices, set all volume levels to minimum. MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual 5 PA_en_2 2/2 Maintenance • Remove the power plug from the AC outlet when cleaning the device. Handling caution • Do not insert your fingers or hands in any gaps or openings on the device (vents). • Avoid inserting or dropping foreign objects (paper, plastic, metal, etc.) into any gaps or openings on the device (vents). If this happens, turn off the power immediately and unplug the power cord from the AC outlet. Then have the device inspected by qualified Yamaha service personnel. MG12XU/MG12 mixing console. Please read this manual thoroughly to get the most out of the product and ensure long-term, trouble-free use.

After reading this manual, please keep it available for future reference. 31 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual 7 Main Features D-PRE and High-Quality Operational Amplifiers Mono input channels are equipped with "D-PRE" Class-A discrete microphone preamplifiers. The D-PRE head amplifier features an inverted Darlington circuit used in high-end audio devices. This circuit uses multi-stage amplifying elements to ensure high current and low impedance, for an audio texture with crispness and richness in the low and mid frequencies. Combined with the specially-designed "MG01" operational amp, the overall result is full-bodied reproduction of low frequencies as well as sustained high frequencies.

Input channels feature combo jacks, which can accept both XLR and TRS connectors. In addition, PAD circuitry allows line level input, to accommodate a wide variety of instruments. Improved Convenience with Built-in Universal Switching Power Supply The MG series features a universal switching power supply. This power supply supports input voltages of 100 V to 240 V, for stable operation even in environments where power voltage fluctuates easily.

Lowering the impedance of the power supply has resulted in improved sound quality with a faster attack.

An AC inlet allows simple installation in environments where portability is required, as well as when mounting the mixing console in a rack. 24 High-Quality Digital Effects (XU Models) The XU models (MG20XU/MG16XU/MG12XU) feature 24 built-in effects that are based on SPX algorithms used by professionals. In particular, the high-quality reverb and delay expand the spatial quality of the sound with remarkable realism and naturalness. With the audio interface you can play back music from your computer, or use DAW software such as Cubase AI to record the mixer output. The XU models support USB Audio Class 2.0 so you can use them with USB Audio Class 2.0 compliant tablets and other devices, without the need to install drivers. the USB protocol uses asynchronous data transfer. Audio data is transferred based on a highly precise audio clock signal from the MG, for high quality recording and playback. Accessories (Please check that they are included with your mixing console.



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) • AC power cord • Rack mount brackets (The RK-MG12 for the MG12XU/MG12 is sold separately.) • Cubase AI Download Information (XU models only): Contains the access code necessary for downloading the Steinberg DAW software “Cubase AI”. Visit the following Yamaha website for details on downloading and installing Cubase AI, and making necessary settings. Com/mg_xu/ • Technical Specifications (English only): Includes general specifications, input/output characteristics, dimensions, as well as a block diagram and level diagram. □ Owner’s Manual (this book) 8 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner’s Manual Quick Start Guide We’ll begin this guide by connecting a pair of speakers and generating some stereo output. Note that the operations and procedures will vary somewhat according to the input devices you are using. • Power switch (rear panel) • [AC IN] jack (rear panel) [GAIN] knobs MG20XU MG16XU Faders MG12XU Step 1 Preparing the Power Supply 1. Make sure that the power switch of the unit is set to the “ ” position (off). Step 3 Powering Up the System To prevent an unwanted burst of noise from the speakers, power up the devices in the following order: peripheral devices (instruments, microphones, etc.) □ mixing console □ power amps (or powered speakers). Reverse this order when turning the power off. CAUTION Be sure to turn the power on/off in the order given in Step 3 above every time you use the mixer. Failure to do so may result in loud noise bursts that can damage your equipment, your ears, or both. 2. Connect the socket of the included power cord to the [AC IN] jack on the rear panel.

3. Plug the power cord into a power outlet. NOTICE If you are using condenser microphones that require phantom power, turn the mixer’s [PHANTOM +48V] switch on before turning on the power to the power amps or powered speakers. See page 17 for details. Also, read the details about the [PHANTOM +48V] switch on page 17 before turning the switch on.

step 2 Making Connections 1. Turn all the faders and [GAIN] knobs completely down. speakers you intend to use. For details on making connections, see “Setup Examples” (pages 12 – 13), “Front Panel” and “Rear Panel” (pages 14 – 15). 2. Connect the microphones, instruments, and/or MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner’s Manual 9 Quick Start Guide Step 4 Getting Sound to the Speakers [PHONES] jack [GAIN] knobs Level meter [PEAK] indicator Level meter [PFL] indicator [PHONES] knob Channel [ON] switches Channel [ST] switches [STEREO] master [ON] switch [STEREO] master fader Channel [PFL] switches Channel faders 1. Turn on () the [PFL] switches for each channel you are using. NOTE • When you turn on the [PFL] switch for a channel, you can monitor the signal for that channel through headphones connected to the [Phones] jack. The level of the signal is also shown on the level meter indicator, allowing you to more accurately check signal levels. After checking levels, turn the [PFL] switches off.

□ When a [PFL] switch is turned on, the [PFL] indicator below the level meter flashes.) the [ON] switch for the [STEREO] Confirm that the [PFL] indicator below the level meter is off. 7. Raise the [STEREO] master fader to the “0” position. Set the channel faders to create the desired 9. Adjust the overall volume of the [STEREO] master fader. The overall headphone level is adjusted by the [PHONES] knob. NOTE If the level meter [PEAK] indicator lights frequently, slightly lower the channel faders to avoid distortion. 2. While playing your instrument or speaking into a microphone, adjust the input signal with the [GAIN] knob until it goes past the “0” (<) position on the level meter only occasionally.

NOTE If you connect a portable audio player, synthesizer, or other equipment to a stereo input channel that has no [GAIN] knob, adjust the output level on the connected device. 3. Turn on () the [ON] switches for each channel you are using.) the [ST] switches for each channel you are using. Turn on (10 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner’s Manual Quick Start Guide Step 5 Using the Built-in Effects (XU Models Only) Display [PROGRAM] knob* [PARAMETER] knob* [AUX (2, 4)/FX] knobs [ON] switch for [FX RTN] [ST] switch for [FX RTN] * The [PROGRAM] knob and [PARAMETER] knob on the MG20XU are in slightly different locations than shown here.

Turn the [PROGRAM] knob to select the desired effect, and then press the knob to enable it. The selected effect program number flashes in the display. For details about available effects, see the Effect Programs on page 33. 4. Raise the [FX RTN] fader to the “0” position.

5. Use the [AUX (2, 4)/FX] knobs to adjust the effect depth for each channel. 6. Use the [FX RTN] fader to adjust the overall effect depth of the selected effect. You can use the [PARAMETER] knob (page 23) to adjust effect parameters such as reverb time and delay time. For details about the parameters of each effect that can be adjusted with the [PARAMETER] knob, see page 33. Turn on () the [ON] switch for [FX RTN].) the [ST] switch for [FX RTN]. q Using Reverb and Delay Your mixes can be further enhanced by using the built-in ambience effects such as reverb or delay. Reverb and Delay Time The optimum reverb time for a piece of music will depend on the music’s tempo and density, but as a general rule longer reverb times are good for ballads, while shorter reverb times are more suited to up-tempo tunes.

Delay times can be adjusted to create a wide variety of repeating rhythmic effects. When adding a delay to a vocal, for example, try setting the delay time to dotted eighth notes (e.) corresponding to the tune’s tempo. Reverb Level While working for many hours on a mix, your sense of hearing will start to dull slightly. This can lead to the perception that tracks with excess processing sound like the perfect mix. To avoid falling into this trap, start with reverb level all the way down, then gradually bring the reverb into the mix until you can just hear the difference. Any more than this normally becomes a special effect or, worse yet, makes the sound muddy and indistinct. In general, you don’t want reverb to dominate the mix, so you should apply it judiciously.

mG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner’s Manual 11 Setup Setup Examples 1. Sound Reinforcement for Live Performance Front Panel Electric guitar Drum Powered speakers (for musician monitoring) Bass guitar Microphones □3 Electric acoustic guitar Microphones □2 Synthesizer Powered speakers (main) DI Mono input jacks accept both XLR connectors and phone connectors.

) Portable audio player NOTE On the MG20XU/MG20, the [SEND] jack, [GROUP OUT] jack, [MONITOR OUT], jack, and [STEREO OUT] jack are located on the rear panel. headphones 12 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner’s Manual Setup 2.



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For Events and Parties Front Panel Microphones DVD player (voice) Powered speakers DJ mixer Headphones Rear Panel Computer (for music playback and/or recording) CD player Power amp (The [USB 2. 0] jack is on XU models only.) Speakers NOTE On the MG20XU/MG20, the [SEND] jack, [GROUP OUT] jack, [MONITOR OUT], jack, and [STEREO OUT] jack are located on the rear panel.

mMG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual 13 Controls and Connectors Front Panel The number and locations of jacks and controls vary slightly by model. Carefully check the name indicated near each jack and control while referring to this manual. Mono input channels (page 16)

Mono/stereo input channels (page 16) Stereo input channels (page 16) Master block jacks (page 24) • The master block jacks on the MG16XU/MG16/MG12XU/MG12 are all located on the front panel. □ The master block jacks on the MG20XU/MG20 are all located on the rear panel, except the [PHONES] jack. [MONITOR] section (page 25) [SEND MASTER] section (page 26) [STEREO] section (page 27) [GROUP] section (page 26) Input Channel Block (page 16 – 21) Built-in Effects Block (XU models only) (page 22 – 23) Master Block (page 24 – 27) 14 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual Controls and Connectors Rear Panel MG16XU Power Block (page 27) USB Block (XU models only) (page 28) MG20XU Master Block Master block jacks (page 24) The master block jacks on the MG20XU/MG20 are all located on the rear panel, except the [PHONES] jack.

MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual 15 Controls and Connectors Input Channel Block Mono input channels 1 – 12 (MG20XU/MG20) 1–8 (MG16XU/MG16) 1–4 (MG12XU/MG12) q Mono input jacks MG20XU/MG20: 1 – 12 MG16XU/MG16: 1 – 8 MG12XU/MG12: 1 – 4 Mono/stereo input channels 13/14 – 19/20 (MG20XU/MG20) 9/10 – 11/12 (MG16XU/MG16) 5/6 – 7/8 (MG12XU/MG12) Stereo input channels 13/14 – 15/16 (MG16XU/MG16) 9/10 – 11/12 (MG12XU/MG12) • [MIC/LINE]: Accepts both XLR connectors and phone connectors. Connect the microphones and or instruments you intend to use. W Mono/stereo input jacks q r t e y u i t o • [MIC]: Balanced XLR microphone input jacks (1: ground, 2: hot, 3: cold) • [LINE (L/MONO, R)]: Unbalanced phone type line stereo input jacks (Unbalanced phone-type and RCA stereo input jacks on the MG20XU/MG20) NOTE On any given channel, you may use either a phone jack or RCA jack, but not both. 5 • [LINE [L, R]]: These are stereo input jacks (unbalanced input) for connecting line-level instruments, such as electric keyboards and audio equipment. Two jack types are provided: phone type and RCA pin type. NOTE On any given channel, you may use either a phone jack or RCA jack, but not both. If both types of jack are used, only the phone jack will function. 7 MG16XU 16 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual Controls and Connectors r [PAD] switch u [COMP] knobs When this switch is turned on (), the input signal from the [MIC/LINE] jack of the mono input channel is attenuated by 26 dB. Turn this switch off () if you've connected a microphone or other device with a low input level to the channel. turn it on () if you've connected a line-level device.

NOTE There may be some noise when operating switches. To prevent this, turn the [ON] switch of a channel off before operating other switches. For adjusting the amount of compression applied to the channel. As the [COMP] knob is turned to the right the threshold, ratio, and output gain are adjusted simultaneously. □ Threshold: +22 dBu to -8 dBu • Ratio: 1:1 to 4 :1 • Output gain: 0 dB to +7 dB • Attack time: Approximately 25 ms • Release time: Approximately 300 ms NOTE Avoid setting the compression too high; since the resulting higher average output level may lead to feedback. T [HPF] (High Pass Filter) switch i [PHANTOM +48V] switch and indicator MG20XU/MG20: 1 – 12 MG16XU/MG16: 1 – 8 MG12XU/MG12: 1 – 4 13/14 – 19/20 9/10 – 11/12 5/6 – 7/8 Turning this switch on () will apply a high-pass filter that attenuates frequencies below 80 Hz in the signal by a slope of 12 dB/octave. NOTE Turning the [HPF 80Hz (MIC)] switch on will apply a dedicated high-pass filter only to the signal from the [MIC] jacks. This switch toggles phantom power on and off. Turn this switch on () to supply DC+48 V to the XLR input jacks. The indicator lights when this switch is on.

Turn this switch on when using one or more phantom-powered condenser microphones. NOTICE • Be sure to leave this switch off (phantom power.) if you do not need • When turning phantom power on (), pay careful attention to the following to prevent damage or noise in the mixing console or connected equipment. - Turn this switch off if equipment that does not use phantom power is connected to the XLR input jacks. - Do not disconnect XLR connector cables while this switch is on.

- Set output controls such as the [STEREO] master fader and the [GROUP] fader to their minimum levels before turning phantom power on or off. Y [GAIN] knobs For adjusting the gain of the input signal. Mono input channels have a [PAD] switch r that lets you change the range of this control. the adjustable gain range is as follows. [PAD] switch ON OFF Range -6 dB to +38 dB +20 dB to +64 dB o [LINE /USB] switch (XU models) Switches the audio source input on CH19/20 USB IN {CH15/ 16 USB IN} {CH11/12USB IN} between the [LINE] stereo input jack and the [USB 2.

0] jack. NOTE The volume input from computers through [USB 2. 1 [AUX 1 – 4] knobs [PRE] switches [AUX (2, 4)/FX] knobs MG20XU/MG16XU: [AUX1], [AUX2 – 3], [AUX4/FX] MG20/MG16: [AUX1], [AUX2 – 4] MG12XU: [AUX1], [AUX2/FX] MG12: [AUX1 – 2] 3 Band [MID] Sweep 3 Band 2 Band The levels of each signal sent to the AUX 1 – 4 buses from each channel can be adjusted independently. On stereo input channels, the Line L (odd) and Line R (even) input signals are mixed before being sent to each AUX bus. Adjust the knobs so that they are near or at the “r” (nominal) position. NOTE • The [AUX1] knob indicated “PRE” adjusts the level of the prefader signal (before fader adjustment). @ @ @ @ @ @ The equalizer shapes the high, mid, and low audio frequencies. @ @ @ @ @ @ @ @ @ @ @ @ PAN: Sets the position of the sound image within the stereo field. @ @ @ @ In this case, the sound image is positioned at the center. @ NOTE To send the signal to each bus, engage the [ON] switch ! @ @ ! @ @ In this condition, the audio from the STEREO L/R buses or GROUP buses that could be heard in the [MONITOR OUT] and [PHONES] jacks can no longer be heard.

When a [PFL] switch is turned on, the [PFL] indicator below the level meter flashes. Turn this switch on () to send the respective channel's signal to the buses. The switch lights when on. When this switch is off (), the respective signal input is not sent to the AUX bus or GROUP bus.



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NOTE • Even if the [ON] switch is off, the PFL signal from each channel can still be monitored via the [PHONES] jack. □ To minimize noise, turn the [ON] switch off for any unused channels. 4 [PEAK] indicators The peak level of the post-EQ signal is detected, and the PEAK indicator lights red when the level reaches 3 dB below clipping. For adjusting the level of the channel signal. Use these controls to adjust the balance between the various channels. NOTE To minimize noise, set the fader sliders for any unused channels all the way down.

PARAMETER PROGRAM 1-2 ON L IN DSP R FOOT SW FX RTN 3-4(*) ST AUX1PRE AUX2PRE (*) AUX3PRE (*) MG20XU Indicates the effect program number selected with the [PROGRAM] knob e. The number flashes during selection; however, if several seconds pass without a selection being made, the program returns to the last number selected. For details about these programs, see the “Effect Programs” on page 33. e [PROGRAM] knob q w Selects one of the 24 built-in effects. Turn the knob to select the desired effect, and then press the knob to enable it.

E r NOTE • You can also select the desired effect by turning the knob while holding it down. □ The [PROGRAM] knob can be used to adjust the volume of audio playback from a computer. For details, see the “Attenuator Function” (page 28). T y e u r y i o o MG16XU MG20XU 22 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner’s Manual Controls and Connectors r [PARAMETER] knob These switches determine the bus(es) to which the signal of the built-in effects is sent. @ @For adjusting the parameter (depth, speed, etc.) for the selected effect. The last value used with each effect type is saved. NOTE When you change to a different effect type, the mixer automatically restores the value that was previously used with the newly selected effect (regardless of the current position of the [PARAMETER] knob). I [PFL] (Pre-fader Listen) switch (MG16XU/MG12XU only) t [AUX1 – 3] knobs (MG16XU) [AUX1] knob (MG12XU) For adjusting the level of the signal sent from the built-in effect unit to the AUX bus. NOTE • The [AUX1] knob indicated “PRE” adjusts the level of the pre-fader signal (before fader adjustment). □ The [FX RTN] fader does not affect the level of the signal sent to the AUX bus. When the [PFL] switch is on (), the [FX RTN] pre-fader (MG16XU/MG12XU only) signal is output to the [MONITOR OUT] and [PHONES] jack for monitoring. o [FX RTN LEVEL] knob (MG20XU) [FX RTN] fader (MG16XU/MG12XU) y [FX ON] switch (MG20XU) [ON] switch (MG16XU/MG12XU) MG20XU MG20XU MG16XU/MG12XU MG16XU/MG12XU This button turns the corresponding built-in effect on or off. When the function is on (), the switch lights. NOTE If this switch is on and the foot switch ([FOOT SW] jack ! 0) is used to turn off the built-in effect, the switch flashes.

These adjust the level of the effect sent from the built-in effects to the GROUP 1-2 (MG16XU, MG12XU), 3-4 (MG16XU), and STEREO L/R buses. ! 0 [FOOT SW] (Foot Switch) jack u Bus assign switch (MG16XU/MG12XU) Connect a foot switch to this phone type input jack. The switch lights in orange when on. An optional Yamaha FC5 foot switch (sold separately) can be used to toggle the effects ON and OFF. MG16XU MG12XU MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner’s Manual 23 Controls and Connectors Master Block q e r q [SEND] jacks MG20XU/MG20/MG16XU/MG16: [AUX1 – 4] MG12XU/MG12: [AUX1 – 2] w t You use these jacks, for example, to connect to an external effect device or a stage/studio monitoring system. these are impedance-balanced* phone-type output jacks. * Impedance-balanced Since the hot and cold terminals of impedance-balanced output jacks have the same impedance, these output jacks are less affected by induced noise. W [GROUP OUT] jacks y u These impedance-balanced TRS phone jacks output the [GROUP 1-2 and 3-4] (MG20XU/MG20/MG16XU/MG16) signals. Use these jacks to connect to the inputs of a multitrack recorder, external mixer, or another similar device. E [MONITOR OUT] jacks Connect these impedance-balanced TRS phone jacks to your operator monitoring system.

NOTE When the [PFL] indicator is flashing, the signal for channels where the [PFL] switch is pressed is output. When the [PFL] indicator is off, the signal for the buses selected in the [MONITOR] section y is output. MG16XU i o MG20XU Rear Panel r e w q 24 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner’s Manual Controls and Connectors r [STEREO OUT] jacks • [POWER] indicator This indicator lights up when the mixer’s power is on (). □ Level meter The level meter LED shows the level of the signal in the STEREO L/R and GROUP buses, or selected with [PFL] switches. The “0” (<) segment corresponds to the nominal output level.

The level meter [PEAK] indicator lights when output reaches the clipping level. □ [PFL] indicator When the [PFL] switch is on, the indicator flashes. These are XLR type and TRS phone-type balanced output jacks that output the mixed stereo signal. The signal level is adjusted by the [STEREO] master fader before it is output. You can use these jacks, for example, to connect to the power amplifier driving your main speakers.

T [PHONES] jack Connect a pair of headphones to this TRS phone jack. NOTE • The [PHONES] jack outputs the same signal as the [MONITOR OUT] jacks. □ When the [PFL] indicator is flashing, the signal for channels where the [PFL] switch is pressed is output. When the [PFL] indicator is off, the signal for the buses selected in the [MONITOR] section y is output. Y [MONITOR] section STL MONI STR MONI MG12XU/ MG12 MG20XU/MG20 MG16XU/MG16 PEAK +10 +6 +3 0 -3 -6 -10 -15 -20 -25 -30 PFL MONITOR MONITOR OUT L [+4dBu] MONITOR OUT R [+4dBu] MG12XU/MG12 POWER • [MONITOR LEVEL] knob For adjusting the level of the signal output to the [MONITOR OUT] jack. PHONES PHONES [3mW 40ohms] G1 MONI G2 MONI MG20XU/MG20 MG16XU/MG16 G3 MONI G4 MONI 1-2/3-4 STEREO/ GROUP • [PHONES] knob For adjusting the level of the signal output to the [PHONES] jack. □ [SOURCE]/[SOURCE SELECT] (Monitor signal selection switch) Sets the signal sent to the [MONITOR OUT] jack, [PHONES] jack, and level meter. You can use this switch to select the signal from the STEREO L/R buses, GROUP 1-2 buses, or GROUP 3-4 buses (MG20XU/MG20/MG16XU/MG16). □ MG12XU/MG12 STEREO L/R buses: [STEREO] () GROUP 1-2 buses: [GROUP] () • MG20XU/MG20/MG16XU/MG16 STEREO L/R buses: [STEREO] () GROUP 1-2 buses: [GROUP] (), [1-2] () GROUP 3-4 buses: [GROUP] (), [3-4] () [PFL L PFL R PFL CTRL]) MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner’s Manual 25 Controls and Connectors u [SEND MASTER] section AUX4/FX, AUX4 (*) (*) Only MG20XU, MG20, MG16XU and MG16 i [GROUP] section GROUP 3 (*) GROUP 4 (*) STEREO R STEREO L (*) Only MG20XU, MG20, MG16XU and MG16 G1 MONI GROUP 1-2 G2 MONI ON GROUP OUT 1 [+4dBu] GROUP OUT 2 [+4dBu] (*) GROUP 3-4 ON GROUP OUT 3 [+4dBu] GROUP OUT 4 [+4dBu] ST ST G3 MONI G4 MONI GROUP 1 SEND AUX1 [+4dBu] SEND AUX2 [+4dBu] SEND AUX3 [+4dBu] SEND AUX4 [+4dBu] GROUP 2 AUX2/FX, AUX2 AUX3 (*) AUX1 AUX1 AUX2 (*) AUX3 AUX4 MG20XU/MG20/MG16XU/MG16: [AUX1 – 4] knobs MG12XU/MG12: [AUX1 – 2] knobs MG20XU/MG20 MG16XU/MG16 MG12XU/ MG12 For adjusting the levels of the signals output to the [SEND] jacks and [AUX1 – 4].



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[ON] switch Turn this switch on () to activate the [GROUP] fader.

The switch lights when on. [GROUP 1-2] fader For adjusting the level of the signal output to the [GROUP OUT 1, 2] jacks. [GROUP 3-4] fader (MG20XU/MG20/MG16XU/MG16) For adjusting the signal level to the [GROUP OUT 3, 4] jacks. [ST] switch If this switch is on (), the signals are sent to the STEREO L/R bus via the [GROUP 1-2, 3-4] faders. The GROUP 1 and 3 signal goes to the STEREO L bus, and the GROUP 2 and 4 signal goes to the STEREO R bus. 26 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual Controls and Connectors o [STEREO] section Power Block • [/] POWER switch STEREO L STEREO R USB-REC-L USB-REC-R STEREO ON STL MONI STR MONI STEREO OUT L [+4dBu] STEREO OUT R [+4dBu] Turns power to the unit on or off. Press the switch to the " " position to turn on the power. Press the switch to the " " position to turn off the power. CAUTION Note that the trace current continues to flow even while the switch is in the off position. If you do not plan to use the mixer for a while, be sure to unplug the power cord from the wall outlet.

NOTICE Rapidly turning the unit on and off in succession can cause it to malfunction. After turning the unit off, wait for at least 6 seconds before turning it on again. [AC IN] jack Connect the included power cord here. First, connect the power cord to this unit, and then plug it into an AC outlet. [ON] switch Turn this switch on () to enable the [STEREO] master fader.

The switch lights when on. [STEREO] master fader For adjusting the level of the signal output to the [STEREO OUT] jack.

mG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual 27 Controls and Connectors USB Block (XU Models Only) only

MG20XU/MG16XU/MG12XU NOTICE • Use an A/B type USB cable. The cable should be no more than 1. Be sure to wake the computer from sleep/suspended/ standby mode before making a connection to the computer's [USB 2.

) USB-REC-L USB Audio Controller USB-REC-R USB-PLAY-R USB-PLAY-L • Connect the mixer to the computer before turning the mixer power on. Always perform the following two operations before turning the mixer's power on or off, or connecting or disconnecting the USB cable. - Confirm that no data is being sent from the mixer. Allow at least six (6) seconds between turning the mixer on or off, and plugging or unplugging the USB cable. The signal from the STEREO L/R buses is output to the computer. (This signal is not affected by the [STEREO] master fader.) A USB driver might be required for computer input/output. You can download the driver from the following Yamaha website, and install it on your computer. Com/mg_xu When the [ST] switch of a channel which has a [LINE / USB] switch is on while DAW software is being used, a loop is formed and feedback or howling may result. [USB 2.

0] Connection Precautions Be sure to observe the following points when connecting to a computer's [USB 2. 0] interface. Failure to observe these rules can result in computer freezes/hang-ups and possibly data loss or corruption. If the mixer or computer does hang up, restart the application and/or computer and turn the power to the mixer off and then on again. The [PROGRAM] knob e (page 22) can be used to adjust the volume of audio playback from a computer. 1. Press the [PROGRAM] knob five times consecutively to display the attenuation value (dB). 2. Turn the [PROGRAM] knob to set it between -24 dB to 0 dB.

(The minus sign is not displayed.

) 3. Press the [PROGRAM] knob again to exit the setting. When the attenuator is enabled, the dot lights at the lower right of the display. 28

MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual Troubleshooting When No Sound Is Output Refer to this section when no sound is output or the volume is very low. This information is for when sound is output from the [STEREO OUT] jacks or the [PHONES] jack.

For details about these functions, see "Controls and Connectors" on pages 14 – 28. q STEP 1 Connections and Signal Flow Check if the instruments, microphones, and speakers are connected correctly, and if any of the cables are damaged. When connecting guitars or basses to the MG, use DI boxes. 4

Make final adjustments to the level of the signal routed through buses. 3 Route signals from channels to buses, and then on to the master block.

MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual 29 Troubleshooting STEP 2 Setting Switches and Controls Check the overall balance Use the settings shown in the illustration to check the overall balance from speakers or headphones. [GAIN] knobs Turn until the [PEAK] indicator begins to flash intermittently. [PHANTOM +48V] switch Turn this switch on (the indicator lit) when using a condenser microphone. To prevent an unwanted burst of noise from the speakers, turn off powered speakers (or power amps) before turning on the [PHANTOM +48V] switch. Level meter If the level meter [PEAK] indicator flashes frequently, lower the faders for each channel. [PHONES] knob For adjusting the headphone level. [ON] switches On (lit) [PEAK] indicators [ST] switches On () [SOURCE]/[SOURCE SELECT] (Monitor signal selection switch) Use to monitor the sound via the level meter and/or headphones.

MG12XU/MG12 STEREO L/R buses: [STEREO] () GROUP 1-2 buses: [GROUP] () [PFL] switches All off () • When [PFL] switches are on, only the signals from those channels are sent to the level meter and headphones. Therefore, you will be unable to check the overall sound. If the [PFL] indicator below the level meter is flashing, one or more [PFL] switches are on.

Channel faders For adjusting the level for each channel. MG20XU/MG20/MG16XU/MG16 STEREO L/R buses: [STEREO] () GROUP 1-2 buses: [GROUP] (), [1-2] () GROUP 3-4 buses: [GROUP] (), [3-4] () [STEREO] master fader For adjusting the overall volume, with "0" as the nominal level. To monitor the signal of each channel You can use the level meter and headphones to check the pre-fader signal for each channel. [PFL] switches: Turn on () for the channel(s) you want to check. • [MONITOR LEVEL] knob: Adjust the level. 30 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual

Troubleshooting Other The power does not come on. q Is the mixer connected to an independent power source (generator, etc.) or a power strip with switches? Check that the power of that device is turned on. q Are the [GAIN] knobs for each channel, channel faders, [STEREO] master fader, and [GROUP] faders adjusted to appropriate levels? Are the bus assign switches and [LINE /USB] switch set appropriately? q Are the [ON] switch and [ST] switch for the channels you are using turned on? q Is the [STEREO] master [ON] switch turned on? q Are the [SEND MASTER] knobs and [AUX 1 – 4] for each channel set appropriately? q When the [PRE] switch for [AUX] is off, are the [ON] switches for the channels you are using turned on? q Are the [PFL] switches for the channels you are not using turned on? turn the [PFL] switches off.



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◻ Are the [GAIN] knobs for each channel, channel faders, [STEREO] master fader, and [GROUP] faders adjusted to appropriate levels? ◻ Is the [PAD] switch on? Turn this switch off for sources with low output levels, such as microphones.

◻ Is the output signal level for the instrument connected to the mixer appropriate? ◻ Are effect or compressor levels too high? Use the [FX] knob, [FX RTN] fader, [FX RTN LEVEL] knob, and [COMP] knob to lower their levels. ◻ Where an input channel provides both a XLR input jack and a phone input jack, or a phone input jack and an RCA pin jack, are there connections made at both jacks? Use only one of these jacks. ◻ Is the microphone connected to a [MIC] jack or a [MIC/LINE] jack? ◻ When using a condenser microphone, is the [PHANTOM +48V] switch turned on? ◻ When connecting an instrument with an output level of +4 dBu, either turn on the [PAD] switch on a mono input channel or use a stereo input channel. ◻ ◻ ◻ ◻ Are the [FX] knobs for each channel adjusted to appropriate levels? Is the [ON] button for [FX RTN] turned on? If external effects are connected to the [SEND(AUX1 - 4)] jacks, are the [AUX1 - 4] knobs for [SEND MASTER] set appropriately? ◻ No sound is output. ◻ No sound is output from the [STEREO OUT] jack.

◻ No sound is output from the [SEND (AUX1 - 4)] jacks ◻ No sound is output from the [MONITOR OUT] jack or [PHONES] jack. ◻ The sound is low, distorted, or noisy. ◻ Is the [HPF] switch turned on? Use the [MONITOR LEVEL] knob to adjust the signal output from the [MONITOR OUT] jacks. ◻ Is [PAN] set to the center? If panned to the center, try reversing the left and right input connections. If, after switching the left and right connections, the side with the low volume level also switches, check the instrument or device that is the source of the signal.

◻ Are you using the same type of cable to connect both the left and right input signals? Cables with built-in resistors will attenuate the signal. ◻ Is the compressor level set too high? Use the [COMP] knob to lower the level. ◻ Use the "Attenuator Function" For details, see page 28. ◻ Left and right levels are different for a stereo signal input. ◻ The sound level is unstable and inconsistent. ◻ The volume of audio playback from a computer need to be adjusted. If any specific problem should persist, please contact your Yamaha dealer. mG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual 31 Appendix General Specifications 0 dBu = 0. 775 Vrms, Output impedance of signal generator (Rs) = 150 Ω All level controls are nominal if not specified. FX) MG16XU MG16 8 2 2 MG20XU MG20 12 4 0 EQ LOW: Gain: +15 dB/-15 dB, Frequency: 100 Hz shelving LED turns on when post EQ signal reaches 3 dB below clipping (+17 dBu) 2 × 12 -segment LED meter [PEAK, +10, +6, +3, 0, -3, -6, -10, -15, -20, -25, -30 dB] 24 programs, PARAMETER control: 1, FOOT SW: 1 (FX RTN CH on/off) USB Audio Class 2.

) Owner's Manual, Technical Specifications, Cubase AI Download Information (XU model only) Rack-mount kit (MG20XU, MG20, MG16XU, MG16 only) Rack-mount kit: RK-MG12 (for MG12XU, MG12), Foot Switch: FC-5 0 to + 40°C For other specifications, see the included "Technical Specifications. Specifications and descriptions in this owner's manual are for information purposes only. yamaha Corp. Reserves the right to change or modify products or specifications at any time without prior notice. Since specifications, equipment or options may not be the same in every locale, please check with your Yamaha dealer. Reverb Time Reverb Time Reverb simulating the acoustics of a small space (room). reverb Time Reverb Time Reverb simulating a large stage. Reverb Time Reverb Time Room Size Room Size Delay Time Delay Time Delay Time LFO* Freq Cutoff Offset Drive Pitch Simulation of a metal-plate reverb unit, producing a more hard-edged reverberation. A short reverb that is ideal for use with a drum kit. An effect which isolates only the early reflection components from reverberation, creating a 'flashier' effect than conventional reverb.

An effect which cuts halfway the tail-end of the reverberation, making a more powerful sound. An effect which repeats the same sound only once. Shortening the delay time produces a doubling effect. Cyclically changes the phase to add modulation to the sound. Adds modulation to the sound, producing an effect similar to the rise and fall sound of a jet engine.

Creates a thicker ensemble-like sound by adding the multiple sounds with different delay times. Multiplies the sound for thicker texture. An effect which cyclically modulates the volume. a wah-wah effect with cyclical filter modulation. The [PARAMETER] knob adjusts the speed of the LFO* that modulates the "wah" filter.

Recreates the lo-fi sound of an AM radio. The [PARAMETER] knob adjusts the frequency band to be emphasized. adds a sharp-edged distortion to the sound. An effect which changes the pitch of the signal. description * "LFO" stands for Low Frequency Oscillator. An LFO is normally used to periodically modulate another signal, using different waveform shapes and modulation speeds. MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual 33 Appendix Jack and Connector List Jacks and Connectors Polarities Configurations INPUT MIC/LINE, MIC, STEREO OUT Pin 1: Ground Pin 2: Hot (+) Pin 3: Cold (-) OUTPUT XLR Jack MIC/LINE*, AUX SEND, GROUP OUT, MONITOR OUT, STEREO OUT Tip: Hot (+) Ring: Cold (-) Sleeve: Ground Sleeve Ring PHONES Tip: L Ring: R Sleeve: Ground Tip TRS Phone Connector LINE (stereo input channels) Tip: Hot Sleeve: Ground Sleeve Tip TS Phone Connector * These jacks also can be connected with TS phone connectors. If you use TS phone connectors, the connection will be unbalanced. Connector Types XLR This 3-pin connector is resistant to externally induced noise, and is used primarily for balanced connections. With properly designed receiving circuitry, cables with this type of connector can also be used for unbalanced signals.

@ @ @ @ @ @ @ @ TRS Phone TS Phone RCA Pin This type of unbalanced connector is most commonly found on home audio and video equipment. RCA type pin jacks are often color coded: white for left audio channel and red for right audio channel, for example. red White 34 MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual Appendix Rack Mounting The MG12XU/MG12 require at least 10 U* of rack space. To take into account the cable connections, we recommend to ensure 11 U* of rack space. The MG20XU/MG20/MG16XU/MG16 require at least 12 U* of rack space. To take into account the cable connections, we recommend to ensure 14 U* of rack space. Use a screwdriver to loosen the screws on the rack mount brackets installed on the mixer. ◻ Precautions for Rack Mounting ◻ This unit is rated for operation at ambient temperatures ranging from 0 to 40 degrees Celsius.



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If you install this unit along with other devices in a poorly ventilated rack, the ambient temperature inside the rack may rise, resulting in inefficient performance. Be sure to rack-mount in the following conditions so the unit does not overheat.

□ When mounting the unit in a rack with devices such as power amplifiers that generate a significant amount of heat, leave more than 1 U of space between the MG and other equipment. Also, either leave the open spaces uncovered or install appropriate ventilating panels to minimize the possibility of heat buildup.

□ To ensure sufficient airflow, leave the rear of the rack open and position it at least 10 centimeters from walls or other surfaces. If the rear of the rack cannot be left open, install a commercially available fan or similar ventilating option to secure sufficient airflow. If you've installed a fan kit, there may be cases in which closing the rear of the rack will produce a greater cooling effect.

Refer to the rack and/or fan unit manual for details. right and left designation of rack mount brackets — 2. Use the screws removed in Step 1 to install the rack mount brackets (included with MG20XU/ MG20/MG16XU/MG16, optional RK-MG12 for the MG12XU/MG12 sold separately) on the mixer. NOTICE

Be sure to use the screws removed in Step 1. Using other screws can cause damage.

rack mount brackets MG20XU/ MG20 MG16XU/ MG16 Accessories Accessories 3. Mount the unit into the rack, and fasten it into — place. CAUTION This unit is heavy, and should be lifted by two people when mounting it into a rack. Indicated L/R (Locate the bracket desMG12XU/ Option sold separately ignated 'L' on the left, Model Name: RK-MG12 MG12 and the bracket designated 'R' on the right) 10 U* 11 U* * The MG20XU/MG20/MG16XU/MG16 require at least 12 U of rack space. To take into account the cable connections, we recommend to ensure 14 U of rack space. 16 36

MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual MEMO MG20XU/MG20/MG16XU/MG16/MG12XU/MG12 Owner's Manual 37 38
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