

# MA-300 Multi-pattern Vacuum Tube Condenser Microphone

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- Recording Tips
- FAQ's
- Warranty Registration
- Customer Service

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# INTRODUCTION

Congratulations on your purchase of a Mojave Audio MA-300 Multi-pattern Vacuum Tube Condenser Microphone. Your MA-300 was carefully designed and constructed using only the finest materials. The MA-300 microphone is capable of delivering superb performance and, with minimal care, will do so for many years. Your MA-300 was thoroughly tested and given a 24-hour factory burn in prior to shipment.

The MA-300's capacitor capsule and electronics are adapted from mid-1950's design practice. The MA-300 utilizes a U.S. made, military-grade, low noise sub-miniature vacuum tube and a Jensen audio output transformer. By utilizing modern components, the microphone system emulates the performance of "classic" tube microphones without using esoteric, unreliable, or hard to find components.

The MA-300 is guaranteed to perform as specified and is suitable for recording even the most demanding music, provided that the microphone is used sensibly.

For optimum performance from your microphone, please read this manual thoroughly and familiarize yourself with the proper use of the MA-300.

# UNPACKING AND INSPECTION

Carefully unpack your MA-300 and verify that all of the accessories included with the microphone are accounted for. Do not discard any packing materials! If anything is missing or damaged, contact your dealer or Mojave Audio immediately.

Items included with the MA-300 are:

1. MA-300 microphone inside an aluminum style carrying case.
2. AC operated microphone power supply.
3. 16-foot microphone cable with 7-pin male and female connectors.
4. MA-300 shock mount and European adapter (fitted to shock mount).
5. AC power cable for power supply - molded IEC business machine type with plug.
6. Rugged carrying case for all above items.

*Verify that the serial number of your MA-300 matches correctly with the one on your receipt. The MA-300 serial number can be found inside the microphone housing. To access, simply unscrew the bottom ring and slide the body off. When corresponding with Mojave Audio about your microphone or when service is required, we will need to know the serial number, so keep it handy.*

## GENERAL INFORMATION

The MA-300 is a multi-pattern vacuum tube microphone and requires a dedicated power supply and seven-pin cable set for operation. These items are provided with the microphone, along with a specially designed shock mount assembly. The capsule is a 3-micron, dual membrane gold-sputtered type. The vacuum tube head-amplifier delivers wide bandwidth and low noise operation. The MA-300 utilizes a sub-miniature vacuum tube, which necessitates the need for a dedicated power supply. The vacuum tube is military grade 5840W new old stock and will deliver excellent performance for many years. A specially designed, high-quality Jensen audio output transformer delivers an isolated, truly balanced output signal, minimizing the possibility of unwanted noise entering the preamplifier. As with all vacuum tube microphones, a warm-up period is advised for optimum performance; usually about ten minutes. The MA-300 includes a 15dB pad and a bass cut switch.

## SAFETY INSTRUCTIONS

### *WARNING!*

To avoid electrical shock to yourself and damage to the MA-300, use proper circuit protection. MA-300s purchased in the USA are set for 120V, 60 Hz operation. MA-300s purchased outside of the USA are set for the voltages of the country to which they are exported. This information is duly noted on the outside of the shipping box as well as on voltage selector of the power supply. The MA-300 uses a line fuse for protection. Never replace this fuse with one of a higher current rating. Use only that type which was supplied with the unit. The power supply cord that is supplied with your MA-300 is a standard “business machine” type. It is a good practice to examine the power cord regularly. Never use a cord that shows damage or that has exposed wires.

There are no user serviceable components inside the MA-300 microphone or its power supply. Always refer service to a qualified technician equipped to service this equipment. Never expose the MA-300 microphone, its power supply or cable set to water or any environment that may create an electrical hazard. In the event of a malfunction, disconnect the MA-300 immediately and determine the nature of the malfunction before attempting to use it again.

To avoid tripping over the microphone cable, make certain that the cable is not in the way of foot traffic, or suspended in an unsafe manner. Make sure that the microphone stand is secure and not likely to fall.

If you have any questions or concerns about operation of your MA-300 please contact the factory: [info@mojaveaudio.com](mailto:info@mojaveaudio.com)

# OPERATION

When plugging the microphone in, the seven-pin XLR connectors between the microphone and the power supply should be inserted *gently* into their corresponding sockets. Rough handling, misaligned orientation, or trying to force the connections together too quickly could result in bent pins.

## *Operation Tip!*

*Your MA-300 was thoroughly checked and burned-in before leaving the factory. Before using it for the first time, we recommend connecting the MA-300 to its power supply and letting it warm up for at least thirty minutes. Moisture build-up on the capsule or on the other high-impedance components within the microphone can cause random noise or static. The thirty-minute initial warm-up will drive out any residual moisture that may have collected on the internal components during shipping or storage.*

Also note that if the MA-300 is being used with phantom powered microphones in a multiple microphone setup, phantom power may be applied to the channel connected to the MA-300 without ill effect, *provided that your standard 3-pin microphone cables are wired properly.*

A grounded power cord is used to connect the power supply to an electrical socket. MA-300 power supplies are shipped pre-wired for standard AC voltage in the country where the microphone is sold. If there is a need to change AC voltage (travel, sale to another country, etc.), an external switch allows the power supply to be configured for 100, 115 or 230 volts at either 50 or 60 Hz. Make sure the fuse is the proper value - 500 mA for 100-120 Volts AC and 250 mA for 230 Volts AC.

"Hot plugging" any vacuum tube microphone can damage the microphone's electronics, *so always be sure to connect the microphone to the power supply with its multi-conductor cable before turning the power supply on.*

## **AC LINE FUSE**

A spare fuse is included with your MA-300 power supply. It is located in the fuse carrier just above the AC receptacle. To access the fuse, gently pry out the carrier with a flat bladed screwdriver. The fuse is mounted in the clip and the spare is located in a small channel behind the cover. Replace the fuse with the same type as supplied with your microphone.

### **MAINS VOLTAGE**

100 Volts AC  
120 Volts AC  
220 Volts AC

### **FUSE TYPE**

T500mAL  
T500mAL  
T250mAL

In the rare event that you experience fuse failure, identify the cause of the failure before using the microphone again! The most common cause for a fuse to fail would be a damaged microphone cable or a broken or bent pin on a connector. The next most likely cause for fuse failure is operation of the power supply on incorrect voltage.

## CARE OF YOUR MICROPHONE

Your microphone is a delicate precision instrument and it should be treated as such. Here are some commonsense rules to keep your microphone healthy.

1. Be careful in your setup so that the microphone and/or power supply never falls to the floor. *Never* suspend the microphone by its cable, and be sure to position the cable so that it cannot be tripped over. Falls to the floor have been the ruin of many a microphone.
2. NEVER hot-plug the microphone (i.e. plug the microphone into an energized power supply), as the resulting voltage surges can damage the microphone's or following preamplifier's electronics.
3. Keep the microphone, cable and power supply in a safe place, such as its carrying case or a microphone locker, when not in use.
4. When plugging in the seven-pin cable between the microphone and power supply, orient the plug correctly and plug the connectors in *gently*. Rough handling or hurry-up plug-ins can result in bent or broken pins.
5. Never connect the power supply to an AC power outlet that has different voltage than what the power supply is set for.
6. Do not expose the microphone to dusty, smoky or humid environments.
7. Any repairs must be performed by a qualified technician. There are no user serviceable parts in the MA-300.
8. Use a soft, lint free cloth to remove fingerprints and other blemishes on the microphone body. Never use chemicals, solvents or detergents.

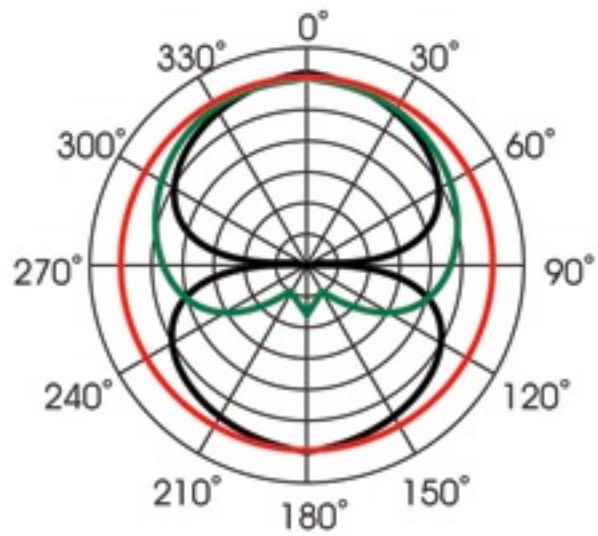
## TECHNICAL SPECIFICATIONS

<b>TRANSDUCER TYPE:</b>	Externally polarized, pressure gradient capacitor, dual membrane
<b>DIAPHRAGM:</b>	1-inch diameter, gold sputtered
<b>DIAPHRAGM THICKNESS:</b>	3-micron
<b>POLAR PATTERN:</b>	Multi-pattern, continuously variable from omnidirectional to figure-eight
<b>FREQUENCY RESPONSE:</b>	20 Hz-20kHz, + 3dB at 'Flat' setting. Bass cut switch provides 6dB per octave attenuation below 100Hz in 'cut' setting
<b>SENSITIVITY:</b>	-37 dB re. 1V/pa
<b>MAXIMUM SPL:</b>	120 dB, 135dB with pad on
<b>DISTORTION:</b>	<1% @117dB SPL, <3% @ 125dB SPL with pad off < 1%@132 dB SPL, <3%@ 140dB SPL with pad on
<b>SELF NOISE:</b>	14dB nominal, not to exceed 16dB (A weighted)
<b>IMPEDANCE:</b>	200 ohms, transformer balanced
<b>VACUUM TUBE:</b>	5840 - pentode tube, wired for triode operation
<b>DIMENSIONS AND WEIGHT:</b>	Carrying case with microphone, power supply, shock mount and cables: 13 lbs. Microphone: 7 5/8 X 2, 1 lb.
<b>SHIPPING WEIGHT:</b>	13.5 lbs.
<b>POWER REQUIREMENTS:</b>	100, 115 or 220-240 volts AC at 50 or 60 Hz. Power consumption approximately 10 watts.

# POLAR RESPONSE

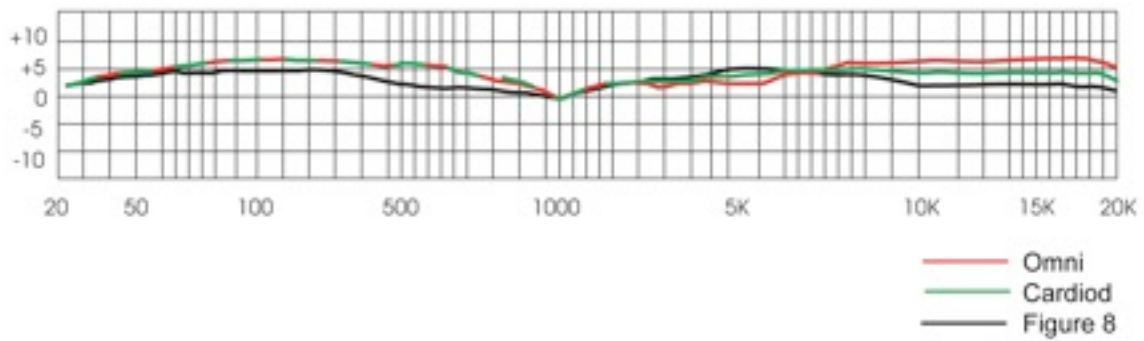
Type: Multi-

pattern



# FREQUENCY RESPONSE

20Hz – 20kHz,  $\pm 2.5$ dB



## POLAR PATTERN SELECTOR

The continuously variable polar pattern selector is a rotary knob found on the front panel of the power supply. The selector allows the user to choose omnidirectional, cardioid and figure eight patterns or a point in between.

**Omnidirectional:** rotate fully counterclockwise. An omnidirectional polar pattern covers all directions and picks up all sound in a 360 degree radius. Useful for natural, ambient sound.

**Cardioid:** 12 o'clock position. Cardioid microphones pick up sound within 120 degrees of the direction they are facing. Useful for capturing one sound with a minimum of ambiance.



**Figure Eight:** rotate fully clockwise. Figure of Eight (bi-directional) microphones pick up sound from the front and rear while rejecting sound from the sides.

Occasionally a point in between will yield the most favorable result. For example, setting the selector to a 2 o'clock position can be an especially pleasant pattern for recording vocals. Also, for close miking of an acoustic guitar in cardioid, rotating the selector towards omni (counterclockwise) can reduce excessive proximity effect (unwanted bass buildup).

## BASS CUT SWITCH

The bass cut switch, also known as a hi-pass filter, provides a 6dB per octave attenuation below 100Hz when engaged. This is very useful in removing unwanted low frequency information such as rumble or bass build-up due to proximity effect. Experienced engineers know that it is a good practice to filter out low frequencies when it does not affect the audible sound. A good example of this would be recording vocals. Most singers do not have much information below 100Hz, so engaging a filter will help maintain the integrity of the signal.

## 15dB PAD

The 15dB reduces the signal before the head amplifier in the microphone. This is very useful for recording high SPL signals. If you are experiencing distortion, engaging the pad will likely be the solution.

Also, if you have the gain on your mic preamp all the way down and the signal is still overdriving your signal path, engaging the pad would be indicated.



# WARRANTY

Your Mojave Audio product is warranted to the original owner for a period of two years. Mojave Audio guarantees this product to be free from electrical and mechanical defects and will repair or replace defective components, or replace the microphone at Mojave Audio's option. Should service be required for your Mojave Audio product, please contact the manufacturer. Excellent service will also be provided for products beyond the warranty period at a modest cost for parts and labor.

Please visit [mojaveaudio.com](http://mojaveaudio.com) for the latest updates and technical information.

MODEL NUMBER \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_

DATE OF PURCHASE \_\_\_\_\_

PURCHASED FROM \_\_\_\_\_