



Congratulations on your purchase of the CM98ST tube microphone. This large diaphragm mic is a precision device that will provide accurate recordings of vocals and instruments. Stunning results can be achieved from its wide-band frequency response and 6 micron edge terminated gold sputtered diaphragm giving your recording a very warm, natural sound. A special high pass filter eliminates unwanted low frequency rumble while a -10dB pad switch prevents the diaphragm from being over-driven. Enjoy your new world of professional recording.

RECEIVING INSPECTION—read before getting started

INSPECT YOUR MIC FOR ANY DAMAGE which may have occurred during shipping. If any damage is found, please notify the shipping company and CARVIN immediately.

SAVE THE CARTON & ALL PACKING MATERIALS. In the event you have to re-ship your unit, always use the original carton and packing material. This will provide the best possible protection during shipment. CARVIN and the shipping company are not liable for any damage caused by improper packing.

SAVE YOUR INVOICE. It will be required for warranty service if needed in the future.

RECORD THE SERIAL NUMBER on the enclosed warranty card or below on this manual for your records. Keep your portion of the card and return the portion with your name and comments to us.

CHECK LIST OF PARTS

- CM98ST microphone
- 48v phantom power supply
- AC cable for power supply
- 7-pin XLR mic cable
- Shockmount
- Soft carry pouch for mic
- Aluminum flight case



For your records, you may wish to record the following information.

Serial No. _____ Invoice Date _____

GETTING STARTED QUICKLY

If you are like most people, you probably want to get started right away. Great! You can read the rest of the manual later to learn the finer points of recording with a condenser mic. In order to get started, you will need your new CM98ST mic and the gold 7-pin XLR Mic Cable, phantom power supply and a 120 V AC grounded power outlet. You will also need a microphone stand to attach the Shockmount to hold your CM98ST mic. Other equipment needed may include other cables to connect to a mixer or recording device.

1. Plug the phantom power supply into the proper AC voltage.
2. With the power off, connect the gold 7-pin XLR mic cable to the MIC IN on the power supply.
3. With the Shockmount connected to a mic stand, thread your CM98ST mic into the shockmount and connect the 7-pin XLR mic cable.
4. Next, you will need a second XLR cable (not included) to connect the OUTPUT of the power supply to your input device (ie. mixer, multi-track recorder etc...).
5. Once connected, you can turn the power supply ON (make sure all volume, gain knobs, or faders on your mixer are turned OFF).
6. Bring the mixer's channel fader up. Speak into the mic to test the level.
7. Turn the mixer's gain up on this channel and stop just before the signal peaks.
8. Check for transients that can cause the signal to peak by speaking or singing at the loudest volume you will perform at and adjust the gain up or down as necessary.
9. With the signal levels set, adjust the polar pattern and any EQ that might be needed.
10. You are now ready to record with your CM98ST mic.

CM98ST SPECIFICATIONS:

Type:	Condenser Pressure Gradient Microphone with 1 inch dual diaphragm and vacuum tube pre-amplifier
Freq. Range:	20Hz-20k Hz
Dynamic Range:	133 dB
Imp:	≥ 300 Ohms
Recommended Load Imp:	≥ 5000 Ohms
Pad Switch:	10dB
Max SPL for 1% THD:	125dB @ 1000 Hz
Low Cut Switch:	-6dB @ 120Hz
Polar patter:	Omni, Cardioid, Bi-Directional and intermediate stages
Power Supply:	48V (Included)
Cable:	30 ft. Gold 7-pin cable
Mic Dimensions:	7"L x 2.25"W
Case:	Aluminum flight case

CARVIN

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CM98ST CONSTRUCTION AND CARE

CM98ST Introduction:

The CM98ST is a studio quality, multi-purpose Large Diaphragm Tube Condenser microphone. It features a Gold Sputtered, 6 micron element and premium, low noise tube preamp electronics, all suspended in a handsome, rock solid, machined casing. The CM98ST also features a 10 dB pad switch for easy handling of really hot signals and a low cut switch for reducing rumble and wind noise. This versatile microphone was developed with the pro studio in mind; so it is equally adept at reproducing stunning vocal performances as it is at capturing the subtlest nuances of a fine acoustic guitar. And with a maximum SPL of 135dB (145 dB with 10dB pad switch engaged), the CM98ST is also an excellent instrument and percussion microphone. The Carvin CM98ST is your affordable ticket to awesome studio sound!

Construction and Shockmount:

The internally braced CM98ST capsule is precision mounted behind a heavy mesh screen of perforated metal with large openings that offers complete protection while maintaining total “acoustic transparency”. Nestled below, is the low noise, class A circuitry surrounded by the solid, machined outer shell. When used with the low cut switch on along with the included Shockmount, low frequency vibration and handling noise are virtually eliminated (-72 dB below 40Hz)!

Power Supply:

The CM98ST comes standard with a heavy duty phantom power supply, ensuring you will never experience noise or distortion during loud dynamic passages due to insufficient current. The power supply connects to the CM98ST conveniently via the included 7-pin gold XLR mic cable. It also features 9 different selectable polar patterns including omni, cardioid and figure-8.

*Note: Carvin is not responsible for damage to your CM98ST caused by an alternate power supply.

Flight Case:

The CM98ST, shockmount, power supply and cables, all fit snugly and safely in a high grade, aluminum alloy flight case so you know your microphone and accessories are well protected between sessions or during travel. Carvin recommends returning your CM98ST to this case after each use.

Care:

Tube condenser microphones do not like to be dropped, tapped, blown into, shaken or stirred. The gold sputtered element is very thin and fragile and can easily be stretched or knocked out of alignment. This is true of all large diaphragm condensers. Be very careful with your CM98ST! If you drop it from any distance, the resulting damage will not be covered under your warranty.

Additionally, these mics don't like moisture. It is always advisable to use a pop screen (Carvin part #WS87) when micing vocals to avoid not only overly accentuated “P”, “B”, and “S” sounds, but also to keep unwanted moisture off of the element. Over time, moisture on the element can attract airborne dust and dirt particles and gradually degrade the performance of your mic. Carvin advises that the microphone be kept in its flight case at all times when not in use. Take a few minutes after every session and put your mic away properly to help ensure years of top notch performance. Additionally, always make sure the silicone “moisture absorber” (little white packet with crystals in it) is packed in the case with your microphone. This will help to eliminate any moisture or humidity in the case during storage. You can re-activate a saturated “moisture absorber” by baking it in an oven at 250 degrees for about 30 minutes. The outer shell of your mic can be cleaned with a soft damp cloth. Do not use harsh detergents, solvents, or abrasive materials.



a) Shockmount

The shockmount will fit any standard mic stand. It is designed to hold the CM98ST mic while reducing low frequency vibration. Place the CM98ST mic into the shockmount cradle and thread the mic clockwise until it is snug. You may also invert the shockmount so the mic is suspended.

b) Low cut switch

The Low Cut switch helps eliminate boomy low end frequencies (-6dB @ 80Hz)

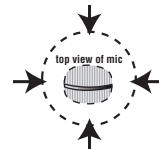
c) 10dB pad switch

This switch changes the mic's maximum Sound Pressure Level (SPL) of 135 dB to 145 dB. Switch to an SPL of 145 dB when recording loud sources.

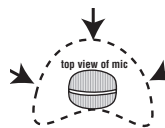
DIRECTIONAL POLAR PATTERNS



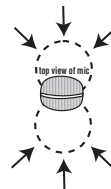
The CM98ST power supply includes a switch to change the mic's directional polar pattern. The three primary patterns are **Omni**, **Cardioid** and **Bi-Directional** or also known as **Figure 8**. The stages inbetween will gradually change the directional pattern and can provide some very useful and subtle tone and response variations to suite your recording needs.



An **Omni-directional** pattern will give your mic the ability to pickup sound from all directions. This is ideal for recording sounds that emanate from multiple directions.



The **Cardioid** pattern is ideal for single instrument or vocal use. The pattern picks up only sound directly in front of the mic. Sound from the other direction is rejected.



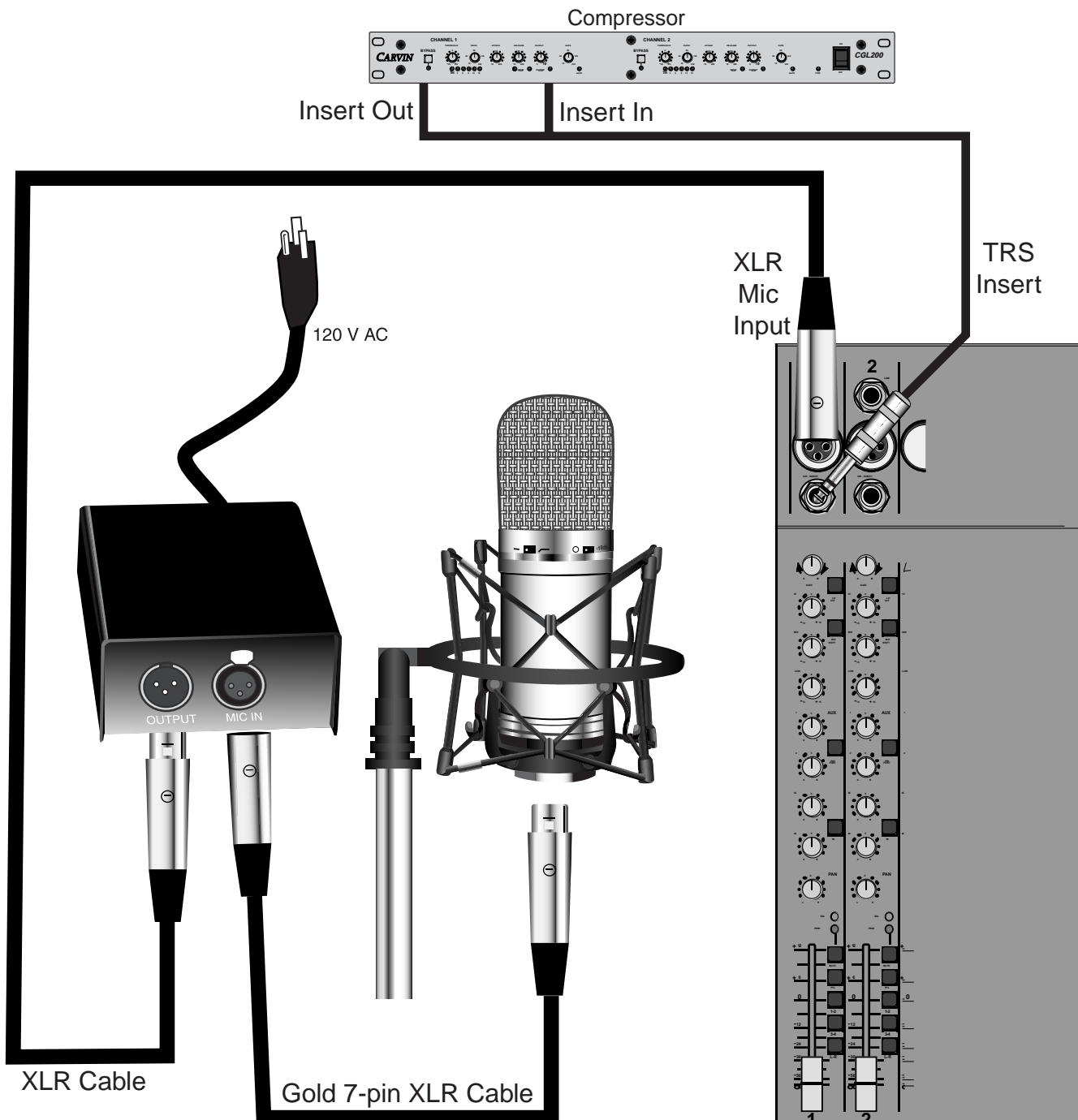
Bi-directional or **Figure 8** will hear sound from both front and back. This is ideal for recording a main sound while still picking up room ambience from behind or duets with two vocalists.

STUDIO SET UP

The illustration below shows the standard set up in a recording studio. The shockmount should be set on a round or tripod base mic stand. The CM98ST should always be set in the shockmount to eliminate any noise or vibrations from the floor or walls. The phantom power supply should be connected to a 120 V AC outlet. Be sure the power supply is properly grounded and never defeat the ground on the AC plug. The gold 7-pin XLR mic cable should be connected to the MIC IN on the power supply and then connected to the CM98ST mic. High quality XLR cables should always be used for mixer connections such as Carvin's XLR25. The OUTPUT jack on the power supply will pass the mic's signal to the MIC input on a mixer. Always disable any phantom power that may be present on the mixer as you will be using an external source for phantom power.

Many professionals use a compressor/limiter when recording. They are ideal for eliminating transient signals. Transients are those quick changes in volume that can cause a performance to sound too loud in some areas. A compressor/limiter will keep the signal at a constant volume while limiting any peak signals. The result is a "hot" and constant signal that is ideal for both vocal performances and recording. The illustration below shows a typical set-up for inserting a compressor/limiter.

With today's high quality digital audio hardware, recording at home has never been so easy and affordable! When recording to a digital or analog format of any kind, be sure to achieve the strongest signal into your mixer without clipping or distorting. This will give you the best signal to noise ratio for professional sounding recordings.

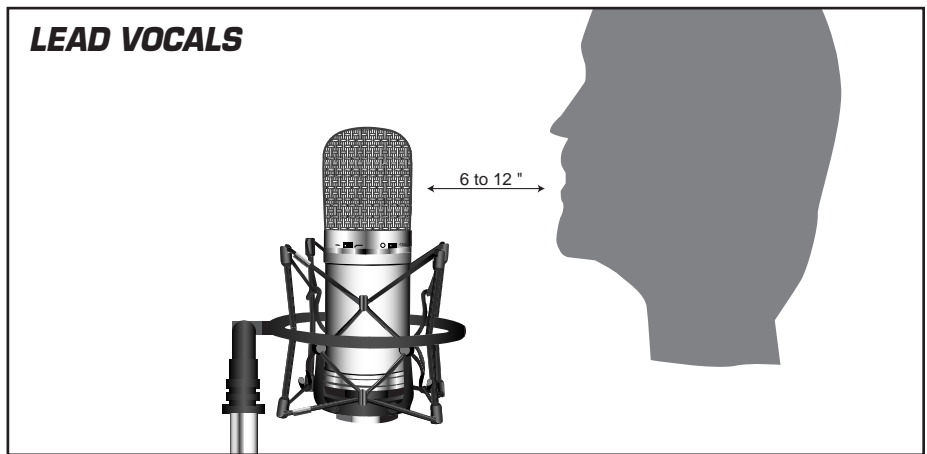


RECORDING TIPS

Lead Vocals

For mic'ing vocals, the element should be close to the height of the singer's mouth in a normal comfortable singing position. Some vocalists prefer the microphone slightly elevated. While proper mic positioning is important for good sound, a relaxed, comfortable singer is more important, so position the mic to the singer's liking (within reason!). Typically 6 to 12 inches away from the mic is ideal for lead vocals, but feel free to experiment. Every mic has a "sweet spot" where the voice reproduction sounds best. That spot is unique for each voice! Experiment with distances to arrive at the "sweet spot". When getting in close to the mic, remember to use a pop screen to prevent "popping" your "P's" and excessive moisture from getting into the mic element.

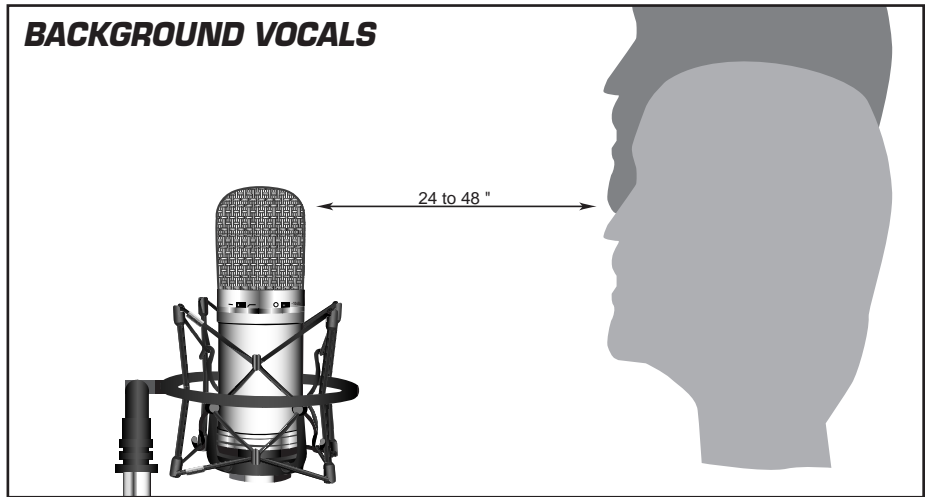
LEAD VOCALS



Background Vocals

If you want the feeling of distance or space, take a step back from the mic. Just be aware that as you get further away, you may need more gain to achieve the desired recording levels. And, with more gain comes the possibility of picking up unwanted noise. When recording multiple vocalists on one mic, test each person's levels individually before recording them together. If one vocalist is louder than the other, have that person take one step back. Repeat this process until all vocalists can be recorded at even levels with a single mic.

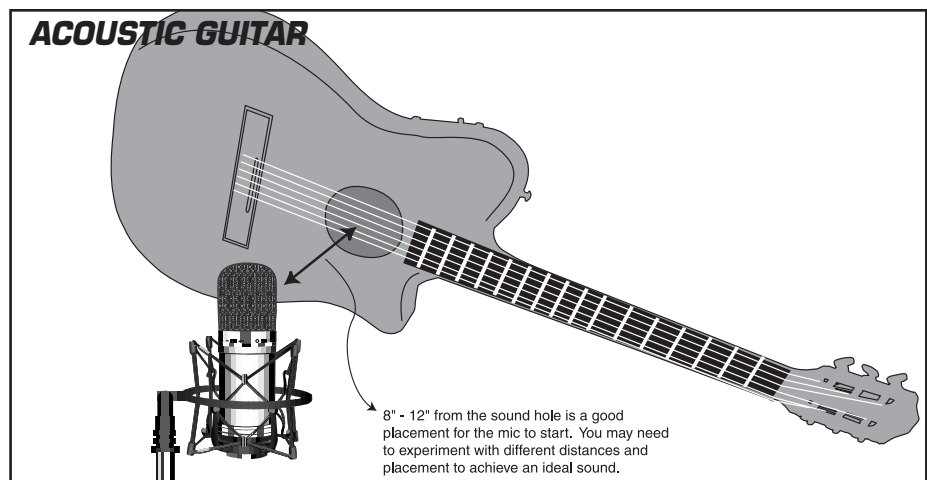
BACKGROUND VOCALS



Recording Instruments

For instrument or percussion mic'ing, there really is no right or wrong placement except when you are recording multiple instruments where proper "close mic'ing" techniques must be used to prevent excessive "bleed-through" between instrument tracks. Never be afraid to try various positions or angles. Feel free to change the acoustic properties of the recording environment by using sound absorbent panels and materials. Additionally, try using multiple CM98ST's at different placements and distances. Example: When mic'ing an electric guitar cabinet, try using one CM98ST's up close (within several inches of the speaker) and another at a further distance as an "ambience" mic. You will achieve a totally different sound than with one mic alone. Mic'ing an acoustic guitar can be a whole art in itself. Start out by placing the mic near the sound hole. Try moving the mic closer to the bridge of the guitar for a brighter sound and closer to the neck and sound hole to add low end frequencies. Using a second mic at a distance can add ambience. The different sound possibilities are limited only by your creativity and imagination!

ACOUSTIC GUITAR



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



IMPORTANT! FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:

WATER AND MOISTURE: Appliance should not be used near water (near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

POWER SOURCES: The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

GROUNDING OR POLARIZATION: Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

POWER CORD PROTECTION: Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

SERVICING: The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

FUSING: If your unit is equipped with a fuse receptacle, replace only with the same type fuse. Refer to replacement text on the unit for correct fuse type.

LIMITED WARRANTY

Your Carvin product is guaranteed against failure for ONE YEAR unless otherwise stated. Carvin will service and supply all parts at no charge to the customer providing the unit is under warranty. Shipping costs are the responsibility of the customer. CARVIN DOES NOT PAY FOR PARTS OR SERVICING OTHER THAN OUR OWN. A COPY OF THE ORIGINAL INVOICE IS REQUIRED TO VERIFY YOUR WARRANTY. This warranty does not cover, and no liability is assumed, for damage due to: dropping, moisture damage, accidents, abuse, natural disasters, loss of parts, lack of reasonable care, incorrect use, or failure to follow instructions. This warranty is in lieu of all other warranties, expressed or implied. No representative or person is authorized to represent or assume for Carvin any liability in connection with the sale or servicing of Carvin products. CARVIN SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

When RETURNING merchandise to the factory, you may call for a return authorization number. Describe the problem in writing.

SAFETY INSTRUCTIONS (EUROPEAN)

The conductors in the AC power cord are colored in accordance with the following code.
GREEN & YELLOW—Earth BLUE—Neutral BROWN—Live

U.K. MAIN PLUG WARNING: A molded main plug that has been cut off from the cord is unsafe. NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAIN PLUG INTO A POWER SOCKET.