The Capacitor mic history and principle

Just before World War 2, a small company in Germany developed a technology for the manufacture of very high quality microphones using the principle that a charged capacitor changes the voltage across its plates when one of the plates is moved with respect to the other. The German company developed a shape of capacitor and the gold membrane that forms the 'moving' plate.

This development reached a high level of sophistication. So much so, that to this day the finest studio microphones follow the design of the original Neumann Company. Fortunately for some other manufacturers in the world, the technology of the original company in East Germany became a part of the technology sharing policy of the Communist world, and it was taken up by some specialist manufacturers in the Far East.

Today, fine microphones are still manufactured by the original company, and by the sharing of technology, we now have a number of products from China that are actually legitimate high quality microphones in their own right. For many years, Joemeek has been making occasional "one off"' capacitor microphones with varying degrees of success.

Attempts to manufacture the microphone economically while retaining the superior performance were not completely successful until Joemeek investigated some of the Far East products. The JM27 is the result of co-operation with a Far East manufacturer and a sustained program of testing in the new Joemeek studio, comparing the production microphone with the best hand built originals, and with some competing products. The JM27 contains all the classic design elements and the sound of the finest microphones in the world.

Origins and Manufacture

The Joemeek JM27 is manufactured under the supervision of PMI Audio Group. All mics are tested for quality control.
The JM27 meets all requirements for electronic equipment in all countries of export.

PMI Audio Group

USA: 23775 Madison Street
Torrance, California 90505
toll free: 877-563-6335 **fax:** 310-373-4714
email: info@joemeek.com

UK: P.O. Box 358
Torquay, Devon TQ2 5XS
tel: +44 (0) 180 3215111
email: eusales@joemeek.com

JM27

Thank you for purchasing the JOEMEEK JM27. With proper use and care, your JM27 will give you years of quality recording. Please read the following instructions carefully, and enjoy using your JM27.

Joemeek Users Guide

JM27 Description

The JM27 is a microphone in the tradition of classic studio microphones. It is a medium sized diaphragm true capacitor microphone with a Cardioid head. This feeds the FET type pre amplifier for low noise. The output balancing is handled by a quality audio output transformer.

The capacitor element is manufactured to the classic 'concentric electrode' design which provides smooth extended frequency response. Quality is further enhanced by using dynamic feedback actually at the capacitor element. This original technique eliminates distortions which can occur when using this type of microphone for high volume levels.

The capacitor membrane is micro fine Mylar with gold sputtering, voltage polarized by phantom power. The microphone body is made of machined brass; Connection is via screened balanced audio cable with 3 pin XLR connectors.

Care of Your JM27

Although the 'Mylar' membrane on the capacitor is more robust than the gold foil used by the German originals of the 1930s, it is still extremely fine and liable to damage if mishandled. There are two safety factors that MUST be remembered when handling these.
1) Keep the microphone dry.
2) Avoid wind or air blasts directly onto the capsule.

NEVER blow at the capsule. This is the most important single rule for capacitor microphones. Damage caused by blasts of air on the capsule are often permanent and require the complete replacement of the capacitor element (microphone head).

So, never use the microphone in the open air without substantial wind protection. Use of a pop shield in windy environments is essential. With instrument recording in the studio though, unprotected use will give the best sound.

All electronic equipment should be kept dry, but it is even more important to avoid any damp conditions when using high quality capacitor microphones. Damp can cause partial short circuits in the polarizing voltage, and this will cause crackling noises and low output.

Operation

The JM27 is capable of handling very high sound volume levels so it can be used safely close to musical instrument amplifiers. Often the best sounding instrument are close miced, so it is good to take advantage of the JM27's high dynamic capability in these situations. It is also a very low noise microphone and suitable for low level or distant miced instrument recording to the highest quality.

For voice recording, avoid singing directly into the capsule unless an efficient pop shield is used.

Problems

Should the microphone accidentally become damp and fail to operate properly (start crackling, or go very quiet) then place it in a warm and very dry environment for 24 hours. The ideal environment is an airing cupboard, or under a 100 watt light bulb for a couple of hours.

The JM27 is extremely resistant to physical damage. but if the microphone fails to work after being dropped, it should be returned in adequate packing to the supplier. A double test and inspection system means that manufacturing faults are almost unknown but should any fault occur, it will be repaired (or replaced) free of charge excepting where the fault has been caused by physical damage.

Connecting Up

Using a high quality balanced and screened audio cable connect the microphone head to the microphone amplifier input and switch on the 48V phantom power. NOTE: the microphone will not operate unless 48V phantom power is provided. A few seconds is often needed for the microphone to reach optimal performance, but be sure to have all audio levels off for the fist 30 seconds during power up.

Warranty

The JM27 is warranted from defects for a period of 1 year, parts and labor. Register for your warranty at www.joemeek.com.

Using the JM27

The JM27 gives a very true sound, meaning that the quality of a recording will depend on microphone placement, and of course, the performer and the surroundings. The response of the microphone is CARDIOID; this means that it is much more sensitive to sounds from the front than from the rear. It is important to remember this when micing up instruments that project sound from different parts; i.e. drums, piano, reed instruments etc. The mic placement will affect the sound quite a bit, so do plenty of experimenting before a take. Remember that different areas of an instrument often produce very different sounds, instrument micing is a highly Creative business and a good technique can make all the difference to the final mix. Once again, do plenty of takes, and don't be afraid to experiment. The JM27 is an extremely capable recording tool: used properly, professional results will be achieved.

Pre amplification is also important to improve the microphone's sounds. Quality systems like the new Joemeek TwinQ can optimize the JM27's performance.

Specification

Dimensions	137X22mm
Frequency Response	30Hz-20KHz
Sensitivity	10mV/Pa-40+/-2dB (0dB= 1 V/Pa 1000Hz)
Polar pattern	Cardioid Diversity> 12dB (300-3000Hz) b Diversity> 15dB(1000Hz)
Impedance	200 ohms
Equivalent noise level	18dB (A Weighted)
Max SPL for O.5% THD@1OOOHz	130dB
Weight	135g