
**SPECIAL PUBLICATION**


**September 1980**

# Basic Music

## NAVEDTRA 10244

## ACKNOWLEDGEMENT

**The contents of this Special Publication were furnished by the courtesy of the United States Army.**

# PREFACE

Special Publications (SPs) are manuals or catalogs that provide information of general benefit and career development. SPs have **no** associated assignments or tests.

*Basic Music* provides a basic reference for music theory. This SP is available ONLY in electronic Portable Document Format from the following web site: http://www.advancement.cnet.navy.mil

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# Sailor's Creed

**"**I am a United States Sailor.

I will support and defend the Constitution of the United States of America and I will obey the orders of those appointed over me.

I represent the fighting spirit of the Navy and those who have gone before me to defend freedom and democracy around the world.

I proudly serve my country's Navy combat team with honor, courage and commitment.

I am committed to excellence and the fair treatment of all."

# BASIC MUSIC

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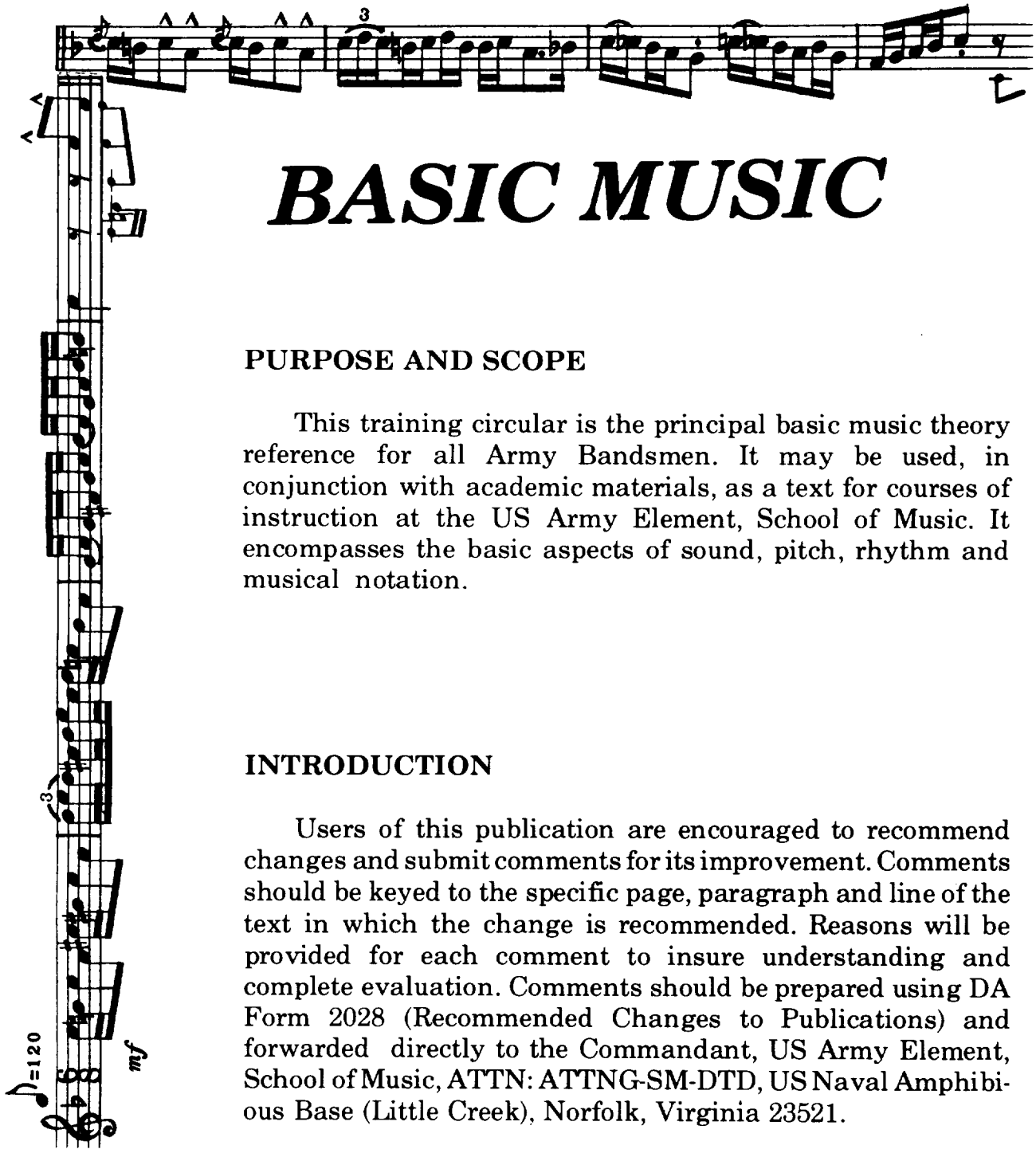



# BASIC MUSIC

## PURPOSE AND SCOPE

This training circular is the principal basic music theory reference for all Army Bandsmen. It may be used, in conjunction with academic materials, as a text for courses of instruction at the US Army Element, School of Music. It encompasses the basic aspects of sound, pitch, rhythm and musical notation.

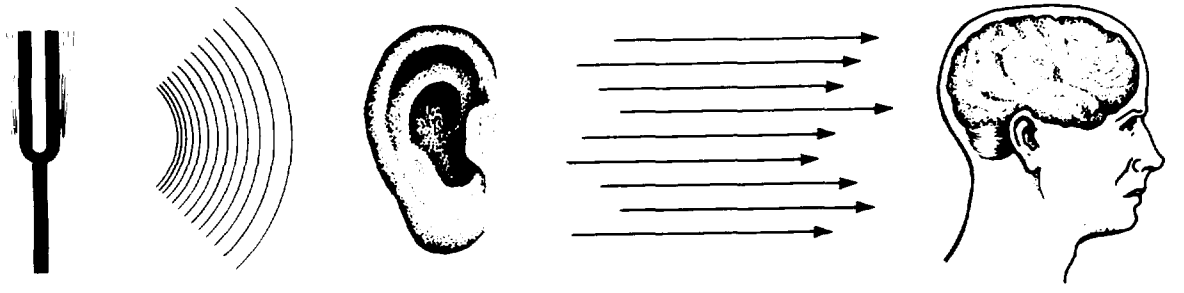
## INTRODUCTION

Users of this publication are encouraged to recommend changes and submit comments for its improvement. Comments should be keyed to the specific page, paragraph and line of the text in which the change is recommended. Reasons will be provided for each comment to insure understanding and complete evaluation. Comments should be prepared using DA Form 2028 (Recommended Changes to Publications) and forwarded directly to the Commandant, US Army Element, School of Music, ATTN: ATTNG-SM-DTD, US Naval Amphibious Base (Little Creek), Norfolk, Virginia 23521.

# CHAPTER 1

## NATURE OF SOUND

Sound is produced by vibration; there is no sound without a sound source in the physical state of vibration. The vibrating sound source transfers vibrational energy to the medium of transmission (gas, liquid, or solid) forcing it to vibrate. The medium, in turn, transfers vibrational energy to the ear, forcing the ear drum to vibrate. The human body's nervous system processes the vibration from the ear to the brain where the vibration is interpreted as sound.



| Vibration | Transmission | Reception | Processing | Interpretation |
|---|---|---|---|---|
| Sound source | Medium (Usually air) | Ear | Nervous system | Brain |

*Figure 1.1: Nature of Sound.*

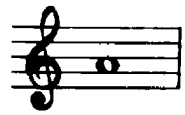
### CHARACTERISTICS OF A MUSICAL SOUND

#### *Pitch*

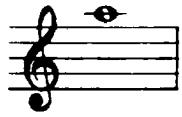
The number of sound waves per second produced by a sounding body is called *frequency*. Frequency is often expressed as the number of cycles per second (CPS) referred to as hertz (Hz). High frequencies are expressed in kilocycles or kilohertz (1 kHz = 1000 Hz).

When frequency of vibration is regular, it is called *pitch*. The pitch is higher when frequency is greater. When frequency of vibration is irregular, it is a sound source but is not pitched.

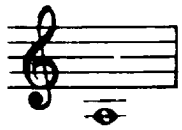
A regular vibration at 440 Hz (440 CPS) produces the pitch *A*.



Doubling the frequency (880 Hz) produces *A* an octave higher.



Halving the frequency (220 Hz) produces *A* an octave lower.



The approximate range of human hearing capacity is from 20 Hz to 16 kHz.

### *Intensity*

The magnitude of force or energy of regular or irregular vibration is known as *intensity*. Intensity, musically referred to as volume, is determined by the amplitude of the vibration of the sound source. The sound is louder when amplitude is greater.

Frequency and amplitude (pitch and volume) may be graphically represented by a simple wave form.

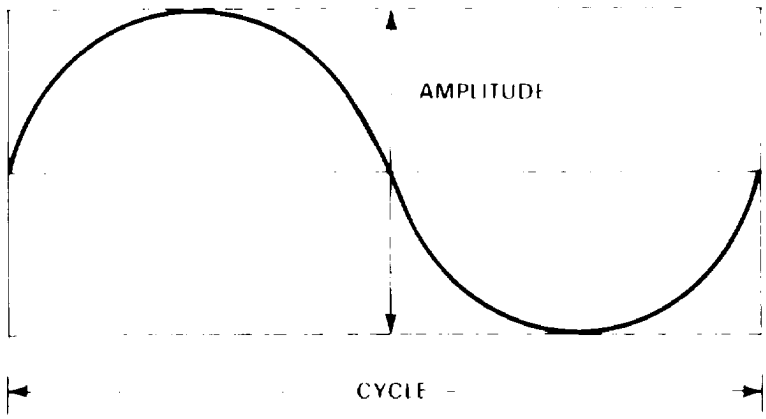



*Figure 1.2: Single Cycle Wave Form.*

Frequency, the number of complete cycles within a given period of time, is represented horizontally. Amplitude is the displacement from center of the wave form and is represented vertically. Greater frequency indicates higher pitch; greater amplitude indicates greater volume.