

Near Field Studio Monitor Speaker System

# Model **NF-1**



## Introduction

The NF-1 is a near field studio monitor speaker system providing the highest capability of analyzing, checking and reproducing audio components contained in the original sound. Built-in speaker drivers are a 16 cm woofer and a tweeter, positioned to ensure accurate and excellent time alignment, and thus optimum performance. The woofer features an HP diaphragm, UDR tangential edge and push-pull damper developed for this particular driver. The tweeter is of a soft dome type, another new development of a UFLC diaphragm. The speaker terminals are configured to allow for a bi-amplifier drive system so that each speaker can achieve its capability to the fullest extent. In addition, both the woofer and tweeter are built using a cast aluminum frame, and HP sound reflectors are arranged inside the enclosure. Embodiment of Fostex's new technologies in every detail of the speakers and enclosure structure has allowed this NF-1 system to offer low distortion and highly transient bass, which have up to now not been available with conventional diaphragm technology. Also, high compliance/reproducibility of the subtlest audio signals makes this NF-1 a truly wide range speaker system. Thanks to these features, NF-1 can demonstrate its ability as an ideal monitor speaker system for recording studios where sound reproduction of highest precision is essential. Please read this manual thoroughly so that unmatched audio performance featured in this NF-1 speaker system can be yours.

## Safety Precautions

- \* Avoid use of NF-1 where contact with water is likely. Otherwise, fire and/or electrical shock may result. This precaution is particularly important when the system is used outdoors (on rainy or snowy days, on the beach or other such places).
- \* Uninterrupted use under abnormal conditions, including smoke or odors, may result in fire and/or electrical shock. On perception of such conditions, the power of the connected amplifier must be immediately turned off and the power plug of the AC adaptor must be disconnected.
- \* When attempting to connect other audio equipment to your NF-1, be sure to connect in strict compliance with the wiring instructions given in the manual provided with such equipment, before inserting plugs of such equipment into wall outlets. Use of the designated cords is also a prerequisite.
- \* For installation of your NF-1, avoid mounting or setting on unstable surfaces, including wobbly or slanting planes. Placement of NF-1 on a shelf is allowed only with application of solid anchoring provisions to prevent falling when shaken. Contact with a falling NF-1 may cause serious injury.
- \* Avoid installation of NF-1 in extremely smoky or steamy places to lessen the likelihood of fire or electrical shock.
- \* Avoid application of excessive input power to the NF-1, otherwise, fire or failure of NF-1 may result. No power greater than that specified in this operation instruction manual must be applied to the system.
- \* Strict compliance with the precautions and use instructions described in this manual is required for ensured safety and continued performance of NF-1. Reading this manual thoroughly and complying with the instructions is vitally important.

## Main features of NF-1

- \* An HP diaphragm of a new type is used in the 16 cm woofer. Sound quality of low distortion and high transition, which no other diaphragms can offer, has become a reality.
- \* Anti-resonance is eliminated by the use of a UDR tangential edge and push-pull damper in the woofer. Also, substantial improvement is made in linearity, and thus, accurate response to the subtlest sound signals is realized.
- \* The tweeter employing a UFLC diaphragm (of soft dome type), being most compliant to and reproducible of even the subtlest signals, are of a wide range design up to 40kHz.
- \* A highly rigid cast aluminum frame is used for both woofer and tweeter. This allows successful elimination of sound colorization caused by undesired natural vibration.
- \* The network used is of a low-loss -6 dB/oct. design, with a focus placed on natural transition between the woofer and tweeter.
- \* The time-aligned enclosure structure has a baffle configuration which will prevent natural vibration noise from developing due to diffraction of reflected sound. The use of HP sound reflectors provides an ideal internal sound processing means for elimination of natural vibration developing within the speaker enclosures.
- \* A much wider listening area than that available with previous products is ensured due largely to the use of an HP diaphragm and a dome tweeter. A bi-amplifier/bi-wiring system provision is included for speaker driving most suitable for individual recording studio environments.
- \* The adoption of a magnetic leakage preventive structure in both the woofer and tweeter permits placement of NF-1 in close proximity to video monitors.

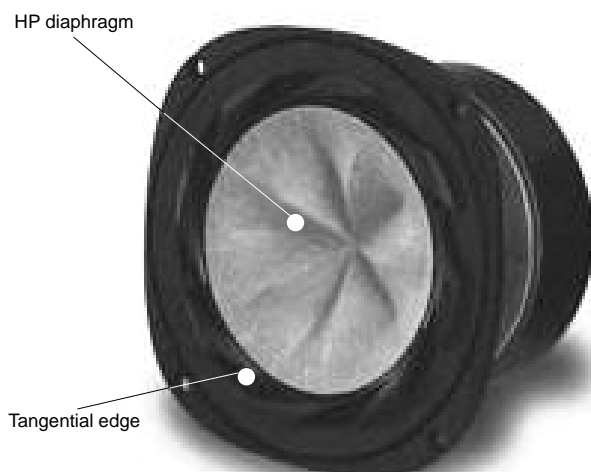
## Particulars of each component

### \* HP diaphragm

“HP”, an abbreviation of a hyperbolic paraboloid normally called an “HP” shell or “hyper shell”, is a 3-dimensional curved surface structure. This HP structure is characterized primarily by the fact that movement of a straight line connecting 2 line segments, which do not share a single plane, forms a hyperboloid and paraboloid.

HP diaphragm's configuration is determined by locating inflection points at the top and bottom to form vertical symmetry, so as to disperse stress with pentagonal divisions which are asymmetrical to the center of the diaphragm, as shown on Figure 1, as the basic option, and the height of curved surfaces is selected so that optimal frequency dispersion as dictated by FEM modal analysis results can be realized.

The base diaphragm materials are NBPK and banana fibers, with carbon fibers of a super high elasticity modulus, PBO super-fiber and pearl mica used as reinforcement materials, Cellgaila pulp as super damping fibers and bio-cellulose used as the matrices material.



<Fig. 1>

### \* UDR tangential edge

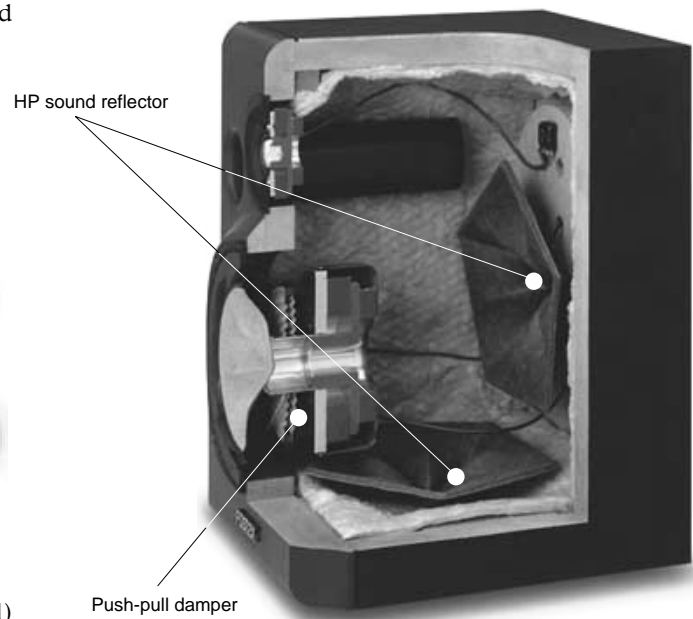
A new era has been opened by the UDR (Up/Down Roll) tangential edge structure which is created by joining up-roll and down-roll at their tangential surfaces. It is configured, through model analyses, to function optimally as diaphragm edges. Use of this edge is with the woofer which plays a key part in the overall speaker system performance.

### \* UFLC diaphragm

A UFLC diaphragm, made of polyurethane plastics which is urethane film laminated over cloth, is used in the tweeter. The use of a UFLC diaphragm allows the highest fidelity sound reproduction which extends naturally to extremely high frequencies, which had not been possible with conventional soft dome technology.

### \* HP sound reflector

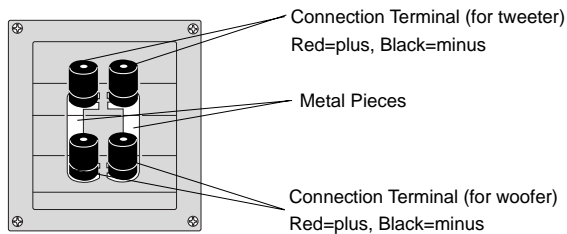
HP sound reflectors represent sound reflectors of the HP system arranged inside the enclosure, as depicted in Figure 2. NF-1 has this type of reflectors and micron wool arranged optimally in enclosures to diffusely reflect the sound present in an enclosure, which creates conditions where no standing waves may develop, and finally, for natural attenuation.



<Fig. 2>

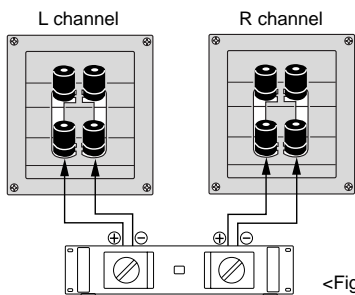
**\* Bi-wiring/bi-amplifier system terminals**

To ensure ideal driving capability of each speaker (woofer and tweeter), NF-1 has a 4-terminal base (for banana shaped tips) to enable independent connections. The default setting has the woofer terminals located at the lower part of the base and the tweeter terminals located at the upper part are connected with metal pieces, as depicted in Figure 3.



<Fig. 3>

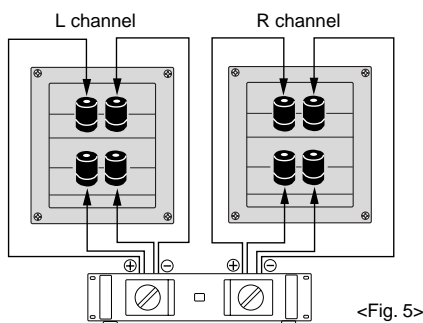
For normal use of NF-1, connect speaker cables to the woofer terminals. Don't remove the metal pieces. (Refer to Figure 4.)



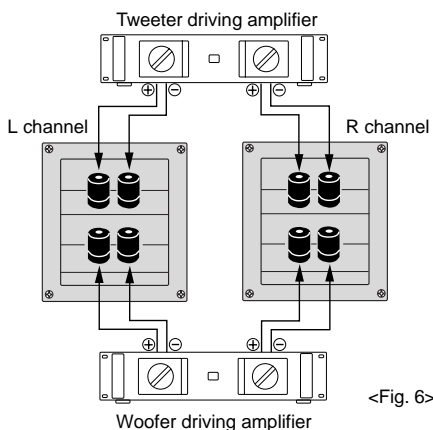
<Fig. 4>

However, removal of the metal pieces is necessary when use of bi-wiring or bi-amplifier system is preferred.

Figure 5 represents bi-wiring connection, and Figure 6, bi-amplifier connection where 2 amplifiers are used.



<Fig. 5>



<Fig. 6>

**<Note>**

When a bi-amplifier system is used, attention must be paid not to connect the woofer and tweeter in opposite phase. Terminals must be securely tightened after speaker cables are connected. Failure to do so may result in poor contact and unwanted vibration.

**<Note>**

Sound levels of the woofer and tweeter can be independently adjusted when a bi-amplifier system is chosen, as shown in Figure 6. In this case, particular attention must be paid to the tweeter to prevent excessive power input to it.

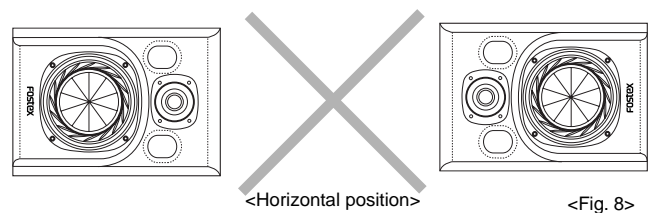
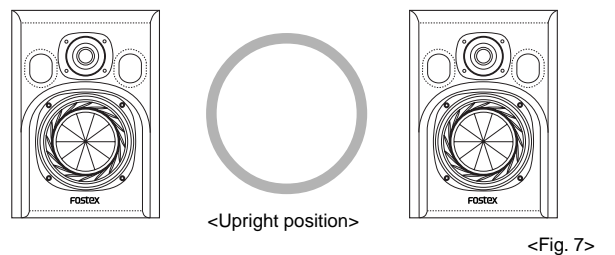
**Installation notes**

**\* Location for optimal time alignment performance**

The extended listening area offered by NF-1 is made possible by careful and precise determination of speaker positions in terms of the direction of diaphragm vibration and by placing the 2 speakers as closely together as feasible. The resultant best listening positions cover, when speakers are connected in phase, the area created by the axes of the woofer and tweeter. Opposite-phase connections will raise the optimal listening points and the monitoring area will become narrower than with in-phase connections.

Attainment of perfect phase characteristics requires determination of the connection best suited to the specific studio environment. Recommended for most cases are in-phase connections with the speaker system location decided in adherence to the previous installation instructions.

This accurately and precisely time-aligned NF-1 is designed for use in the upright position as shown in Figure 7. Due to the fact that human ears are very sensitive in the horizontal direction, use of the system in that position is discouraged.

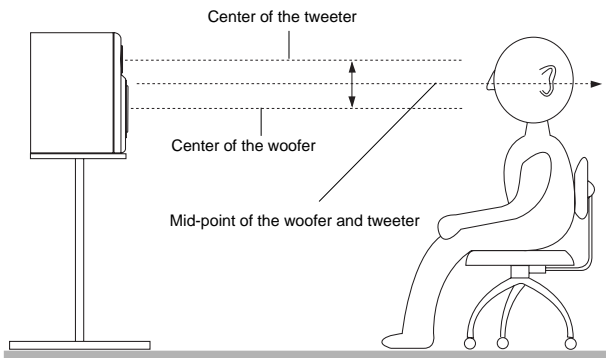


**<Note>**

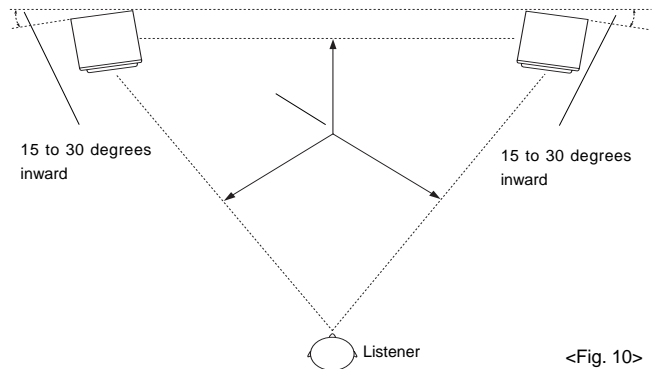
Don't place any beverage containers on the enclosure. When spilt, there is great likelihood of damage to the speakers.

## Optimal listening points and setting

Setting of the system is ideal when the mid-points of the woofer and tweeter meet the listener's ear level to allow full enjoyment of the NF-1's ability. (Please refer also to Figure 10.) Then, mutually orient them 15 to 30 degrees inward to form a triangle as shown in Figure 10, with the open vertex of the triangle falling at the planned listening position. The listening position thus determined represents the point where the design intent can be enjoyed to the fullest extent.



<Fig. 9>



<Fig. 10>

## Maintenance precaution

Be careful when cleaning speaker/enclosure surfaces!!

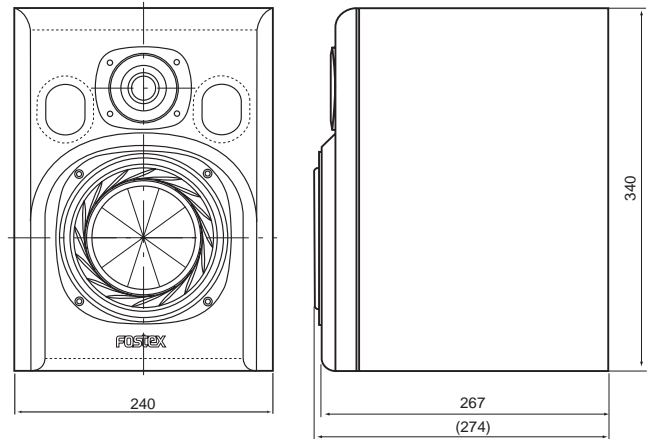
\* No protecting grilles or covers are provided with NF-1. Brush off dust attached to surfaces of speakers with soft dusters. Avoid direct fingers or damp dust cloth contact with diaphragms.

\* Stained enclosure surfaces must be wiped with tightly wrung-out soft cloth after immersion in a diluted detergent. Under no circumstances must organic solvents such as paint thinner be used.

## Specifications

Impedance	: 8Ω
Speaker Unit	: 16 cm Woofer x 1 : Dome Tweeter x 1
Frequency Response	: 50Hz ~ 40kHz
Sound Pressure Level	: 89dB/W (1m)
Input (Program)	: 120W
Weight	: Approx. 9.1kg
Crossover Frequency	: 10kHz
Enclosure Type	: Bass Reflex Type

<Dimensions>



\* Specifications and physical appearance are subject to change without notice.

