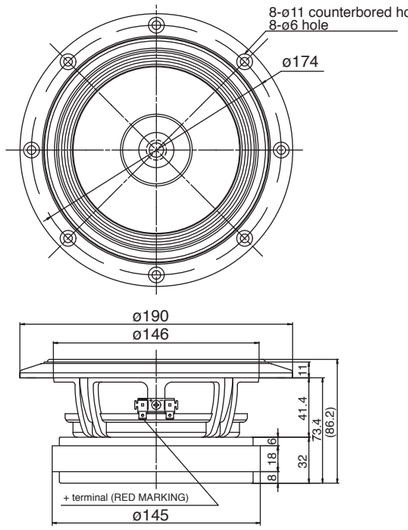
Dimensions / Specifications / Frequency Response

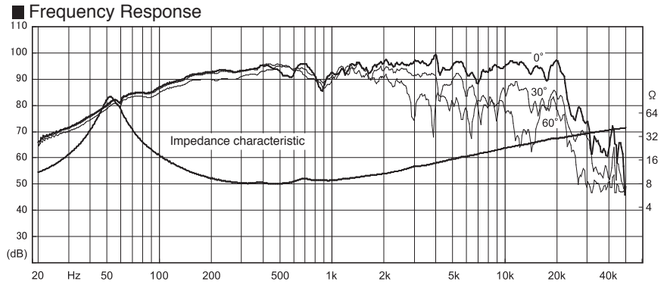


■ Specifications

Type	16 cm cone type full range
Impedance	8 Ω
Lowest resonance frequency (f_0)	56 Hz
Frequency response	f_0 ~ 24 kHz
Output sound pressure level	93 dB/W(1m)
Input (Music)	80 W
m_0	7.0 g
Q_0	0.23
Equivalent diaphragm radius	6.5 cm
Magnet weight	1,100 g
Net weight	3.15 kg
Baffle hole diameter	ø151 mm

■ Accessories
- Wood screws x 8 pcs.
- Flat washers x 8 pcs.
- Packing x 1 pc.
- OFC internal wiring cable with #205 Faston terminal x 2 pcs.

■ Frequency Response



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER - SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, 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.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:
To reduce the risk of fire or electric shock, do not expose apparatus to rain or moisture.

Avertissement:
pour réduire le risque d'incendie ou de choc électrique, ne pas exposer cet appareil sous la pluie et l'humidité.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all Instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding - type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. The apparatus shall be used in an open area.
    Cet appareil doit être utilisé dans un endroit a aire ouverte.
16. Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on apparatus.
    L'appareil ne doit pas êclaboussures et aucun objet ne contenant de liquide, tel qu'un vase, ne doit être placé sur lobjet.
17. Mains plug is used as disconnect device. It shall remain readily operable and should not be obstructed during intended use. To completely disconnect the apparatus from supply mains, the mains plug of the apparatus shall be disconnected from the mains socket outlet completely.
    La prise du secteur et utilisé pou déconnecter le système. La prise du secteur ne doit pas être obstruée ou doit être facilement accessible pendant son utilisation. Pour être complètement déconnecté de l'alimentation d'entrée, la prise doit être débranchée du secteur.

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Owner's Manual

FULL RANGE SPEAKER UNIT

FE163En-S

FE163En-S is a direct line from FE163 and is an over-damping speaker unit that has been developed based on all the skills that Fostex cultivated in the past. Retaining the FE series' middle-high range bright and forceful sound characteristics, a fulfilled low-mid range and a smooth frequency response up to a higher range are realized. A light-weight and easy-to-drive diaphragm is driven by a powerful magnetic circuit. This allows to realize a linear response from low to high input level, a superb acoustic field position and fine as well as powerful high-definition sound reproduction.

Main Features

• Corrugation type light-weight fiber edge
While steadily holding the ES cone paper, a corrugation type fiber edge is employed to realize a higher compliance and to improve the linearity. On FE163En-S, by changing the shape of edge inner/outer circumstances and peaks/troughs intermediate part, an edge-specific resonance has been diverged and lightened for a better response from a low to high input level. Also a thick low-mid sound even with an over-dampling characteristic as well as a clear and flat mid-high frequency response have been achieved.

• Three-point adhesion / pocket-neck damper
A three-point adhesion which binds the cone paper, spider and voice coil bobbin at the same line is employed to enhance the strength of the inside rim of the cone paper for stable high frequency characteristics. Employing a pocket-neck damper which puts a pocket shape at the damper neck section allows a three-point adhesion even with the use of a junction cable to the voice coil and reduces a transmission loss from the voice coil to the input terminal.

• Low-distortion large ferrite magnetic circuit
A 145 mm diameter large ferrite magnet is employed for the magnetic circuit to ensure a substantial magnetic flux density. A nickel plating process is applied onto the magnetic circuit metal part surface finishing. With a placement of copper ring to the inner circumstance of the magnet, a current distortion is lessened to realize a low distortion of the drive system.

• Highly-rigid aluminum die-cast frame
A high-rigid aluminum die-cast frame which securely holds a low-distortion large magnetic circuit and does not transmit an unnecessary vibration to the cone paper is employed.

• Gold-coated 205 Faston receptacle terminal / High definition OFC (Oxygen Free Copper) interconnection material
Less junction-loss gold-coated Faston receptacle terminals are employed to avoid a sound degradation as much as possible. Employing high definition OFC cables lessen a transmission loss from the speaker input terminals to the speaker unit.

FE163En-S Applications

A back loaded horn type enclosure which fully maximizes the FE163En-S's over-damping characteristic has been designed. In order to flatten the low frequency response and to realize a massive but yet speedy low frequency reproduction, the horn opening was brought closer to the speaker unit (CW horn composition, fc = 21 Hz, horn length: 215 cm).
Using a T96A-EX2 as a super tweeter is recommended. Choose a capacitor value from 0.33 to 0.68 uF depending on your preferences. The connection should be reversed phase. You can also choose either the baffle design 1 or 2. FE163En-S is only mounted on the baffle board in the design 1. T96A-EX2 should be placed on top of the top board and 4 mm forward from the front baffle. In the design 2, both FE163En-S and T96A-EX are mounted on the baffle board. You can place the baffle board up-side-down to adjust the tweeter height depending on your listening position. For the network of baffle 2, C: 0.33 uF and L: 0.18 mH (-12 dB/oct) with reversed phase connection are recommended.
Assemble the enclosure by following the assembly sequence described in this manual. Tips are as follow. Glue the top panel, bottom and rear panel section to one side of the side panel. Next, glue the block D and then the other side of side panel. This allows a more precise as well as easier assembly. Remember that a reinforcing board No.2 is used only when the baffle design 1 is selected. As an acoustic material, the one made of wool should be used in the air chamber and the one made of felt should be put on the bottom plate No. 4.

■ Enclosure designed value

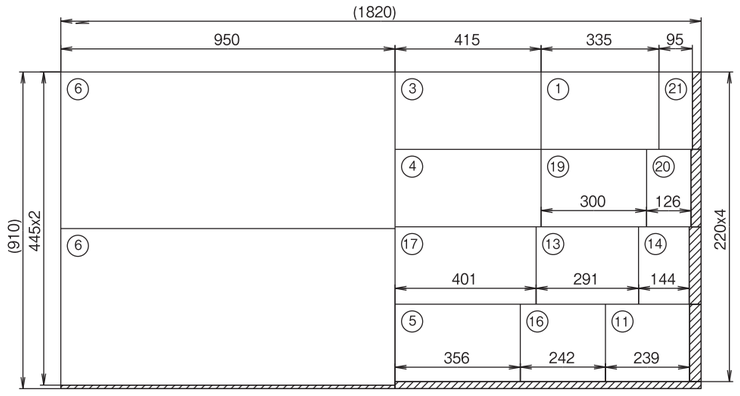
Air chamber	V_B=6.0 liter
Throat area	S0=96 cm^2
Opening area	S=536 cm^2
Horn length	L=215 cm

fc: 21 Hz (m=0.008)

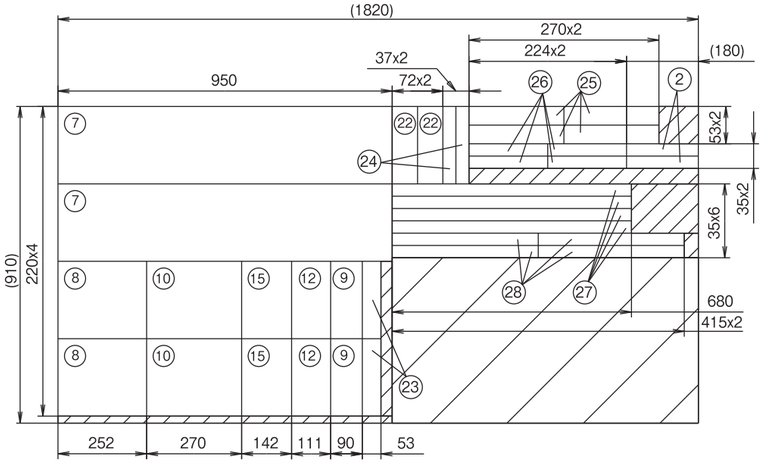
■ Material

Lime tree plywood, 910 x 1,820 mm, t: 15 mm. . . . 4 pcs.
Terminal: T150B. . . . . 2 pcs.
Acoustic material: Felt, wool. . . . . Moderate amount

■ Board cutting drawing (for 2 pcs.)



(Cut 2 pcs.)

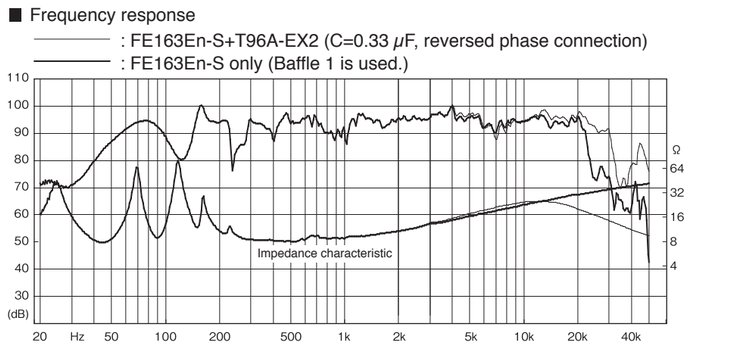


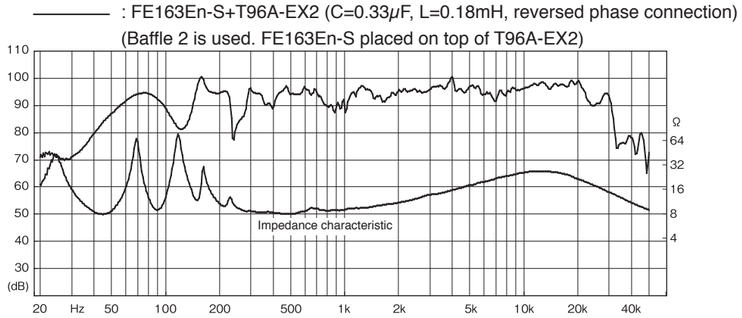
■ Board dimensions chart (for 1 pc.)

No.	Description		Qty.	
1	Baffle 1/2	220 x 335	1	
2	Baffle reinforce	(180) x 35	1	※1
3	Top board	220 x 415	1	
4	Bottom board	220 x 415	1	
5	Lower front	220 x 356	1	
6	Side board	445 x 950	2	
7	Back board	220 x 950	1	
8	Back cavity	220 x 252	1	
9	Bottom cavity	220 x 90	1	
10	Load 1	220 x 270	1	
11	Load 2	220 x 239	1	
12	Load 3	220 x 111	1	
13	Load 4	220 x 291	1	
14	Load 5	220 x 144	1	
15	Load 6	220 x 142	1	
16	Load 7	220 x 242	1	
17	Load 8	220 x 401	1	
18	Load 9	220 x 80	1	
19	Load 10	220 x 300	1	
20	Load 11	220 x 126	1	
21	Load 12	220 x 95	1	
22	Load 13	220 x 72	1	
23	Load 14	220 x 53	1	
24	Load 15	220 x 37	1	
25	Reinforce 1	53 x 270	2	
26	Reinforce 2	35 x 224	2	
27	Reinforce 3	35 x 680	2	
28	Reinforce 4	35 x 415	2	

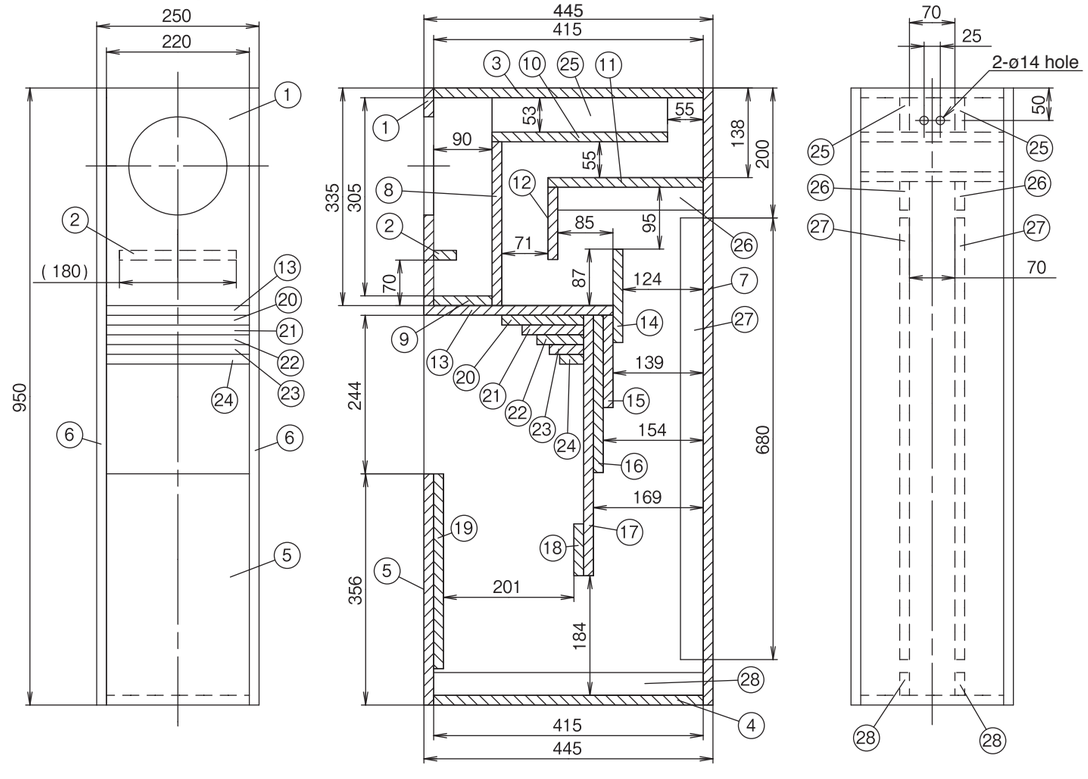
※1: Used when baffle 1 is selected.

■ Frequency response





■ Enclosure assembling drawing



■

A: (10+25+25+8)+(1+2+9+3) Baffle 1
+(1+9+3) Baffle 2
B: (11+12+26+26)+(7+27+27)
C: (5+19)+(4+28+28)
D: (13+14)+(15+16+17+18)
+(20+21+22+23+24)
E: 6+A+C+B
F: E+D
G: F+6

■ Baffle hole drilling size