Beta 53
User Guide

HEADWORN MICROPHONES

27C3115 (BF)

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GENERAL

The Shure Beta 53 is a subminiature, electret condenser headworn microphone. It is intended for wireless use in sound reinforcement applications that require minimal visibility and maximum mobility, such as stage performances.

Despite its small size, the microphone element provides full, articulate reproduction of speech and vocals, and features an omnidirectional pick-up pattern.

The Beta 53 consists of an adjustable wireframe and boom that allows flexible placement of the microphone cartridge. It is also supplied with two different equalization caps that tailor the microphone's high-frequency response. Acoustic windscreens are supplied to minimize wind noise.

MODEL VARIATIONS

WBH53B: Black microphone with 5' cable, terminated with a TA4F connector.

WBH53BX: Black microphone with 10' cable, no connector.

WBH53T: Beige microphone with 5' cable, terminated with a TA4F connector.

WBH53TX: Beige microphone with 10' cable, no connector.

FEATURES

- *Interchangeable equalization caps that tailor the microphone's frequency response*
- *Cable clips provide cable management and strain relief*
- *Offered in black or beige with matching accessories*
- *Adjustable headband*
- *Adjustable boom mounts on either side of the head*

ACCESSORIES

Windscreens. Acoustic foam windscreens are supplied to help reduce undesirable wind and breath noise.

Equalization Caps. The Beta 53 is supplied with two types of equalization caps for high frequency response shaping. The caps differ in response between the frequency range of 5,000 to 20,000 Hz (see Figure 8), and can be distinguished by their mesh color. The mild boost equalization cap has a silver mesh screen, while the high boost equalization cap has a gold mesh screen.

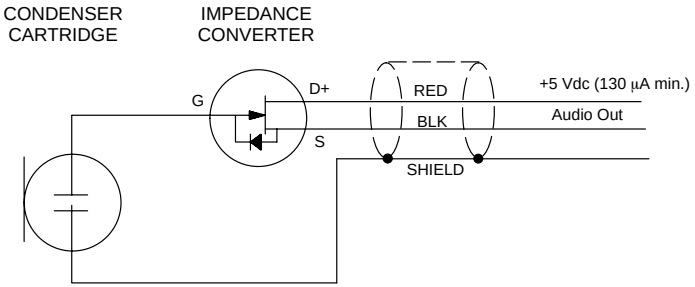
Clothing Clip. A clothing clip is supplied with the Beta 53 for cable management and additional strain relief.

USING THE BETA 53 IN HARDWIRED APPLICATIONS

An in-line preamplifier (Shure part no. RPM626) may be used with the Beta 53. This device requires phantom power ranging from 11 to 52 Vdc.

USING THE BETA 53 WITH OTHER BODYPACK TRANSMITTERS

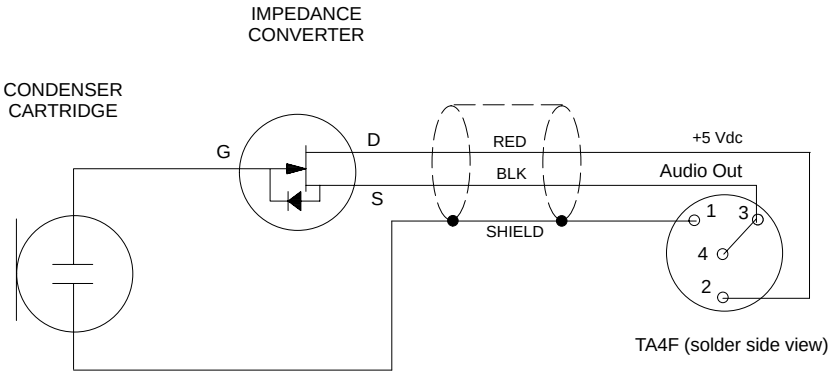
If connecting the microphone to anything OTHER than a Shure wireless bodypack, make sure it provides a regulated +5 Vdc source (130 μA minimum) to the red conductor, as shown in Figure 1.



MICROPHONE WIRING DIAGRAM
FIGURE 1

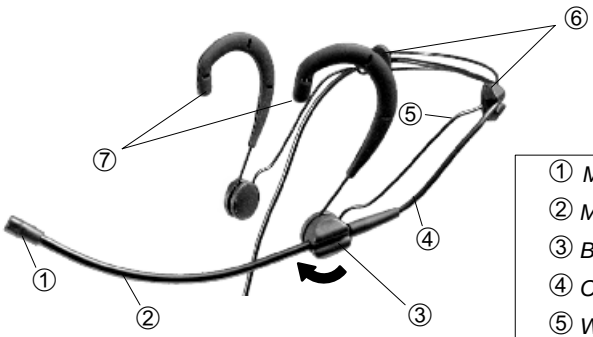
USING THE BETA 53 WITH THE TA4F CONNECTOR

The following diagram shows how the Beta 53 is wired to the TA4F connector.



TA4F CONNECTOR WIRING DIAGRAM
FIGURE 2

MICROPHONE PARTS



① *Microphone Cartridge*
② *Microphone Boom*
③ *Boom Clip (rotates as shown)*
④ *Cable*
⑤ *Wireframe*
⑥ *Strain relief clips*
⑦ *Earforms*

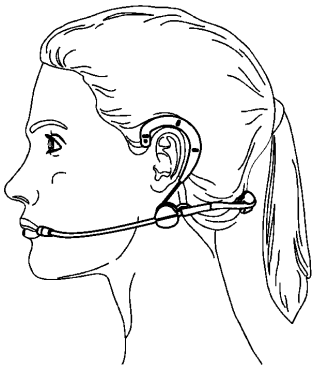
WBH53 HEADWORN MICROPHONE PARTS
FIGURE 3

REVERSIBLE AND ADJUSTABLE BOOM

The Beta 53 boom can be placed on either side of the wireframe. Snap the boom into the boom clip, which can be rotated as shown in Figure 3. The boom can also slide forward and backward in the boom clip to adjust the microphone-to-mouth distance. CAUTION! Do not attempt to bend the boom itself. Adjust the boom by rolling it closer to or further away from the mouth.

WEARING THE WBH53

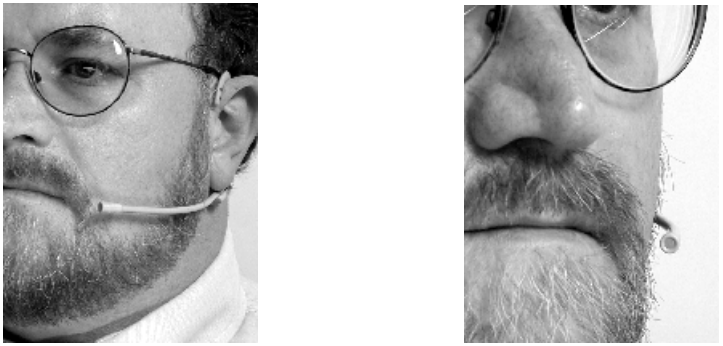
Place the wireframe around your head so the earforms go over the ears from behind and the wireframe lays horizontally across the base of the skull (see Figure 4).



WEARING THE BETA 53
FIGURE 4

POSITIONING THE MICROPHONE

For best performance, the Beta 53 microphone should be placed at the corner of the mouth, and as close to the mouth as possible without touching any skin or facial hair (see Figure 5). If necessary, the boom can be “rolled away” from the mouth to avoid contact with facial hair (see Figures 6 and 7).



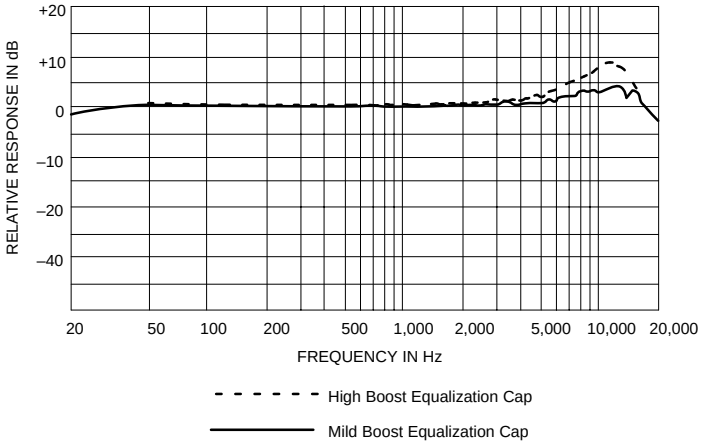
CORRECT POSITIONING OF THE MICROPHONE
FIGURE 5

INCORRECT POSITIONING OF THE MICROPHONE
FIGURE 6

“ROLLING” THE MICROPHONE BOOM
FIGURE 7

SPECIFICATIONS

(measured with a standard test circuit, see Figure 9 on page 33).



TYPICAL FREQUENCY RESPONSE
FIGURE 8

Type
Condenser (electret bias)

Frequency Response
20 to 20,000 Hz (see Figure 8)

Polar Pattern
Omnidirectional

Recommended Minimum Input Impedance
20 kΩ

Output Level
Open Circuit Voltage
-54 dBV/Pa
1 Pascal = 94 dB SPL

Maximum Sound Pressure Level
142 dB at 1% THD/1 kΩ load

Dynamic Range
103 dB

Output Noise
(equivalent SPL, A-weighted)
39 dB typical; 42 dB maximum

Signal-to-Noise Ratio
55 dB at 94 dB SPL

Current Drain
60–130 μA

Polarity
Positive pressure on the diaphragm produces a positive voltage at pin 3 relative to pin 1 at the output connector of the microphone.

Power Requirements
+5 Vdc on pin 2, return on pin 1 (ground)

Environmental Conditions
Operating Temperatures:
-18° to 57° C (0° to 135° F)
Storage Temperatures:
-29° to 74° C (-20° to 165° F)
Humidity: 0 to 95%

Cable
1.5 m (5 ft), small-diameter, shielded, with mini 4–pin connector (TA4F), or 3 m (10 ft.) small-diameter, shielded, no connector.

Net Weight
35.35 g (1.25 oz.) with cable and TA4F connector.

Certification

Eligible to bear CE marking. Conforms to European EMC directive 89/336/EEC. Meets applicable tests and performance criteria in European EMC Standard EN 55103 (1996) parts 1 and 2, for residential (E1) and light industrial (E2) environments. Meets applicable test and performance criteria in European wireless microphone EMC standard ETS 300445 (1996) as an “ancilliary device.”

FURNISHED ACCESSORIES

Foam windscreens (2 pcs.), black or beige
High Boost Equalization Caps (2 pcs.), black or beige
Mild Boost Equalization Caps (2 pcs.), black or beige
Swiveling Lapel Clip (1 pc.), black or beige
Plastic Carrying Case, black

OPTIONAL ACCESSORIES

In-line Preamplifier RPM626
Phantom Power Supply (requires the use of an in-line preamplifier) PS1A
Battery Operated Preamplifier MX1BP

REPLACEMENT PARTS

High Boost Equalization Cap (5 pcs.)
- Black RPM208
- Beige RPM212

Mild Boost Equalization Cap (5 pcs.)
- Black RPM220
- Beige RPM214

Swiveling Lapel Clip (5 pcs.)
- Black RPM510
- Beige RPM512

Boom Holder and Logo Pad (2 pcs.)
- Black RPM570
- Beige RPM580

Foam Windscreens (5 pcs.)
- Black RPM304
- Beige RPM306

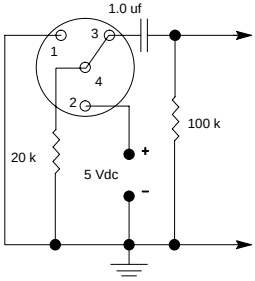
Plastic Carrying Case for Beta 53, black 95A2180

Replacement Headband for Beta 53
- Black RPM550
- Beige RPM560

Mini 4–pin Connector (TA4F) WA330

Microphone and Boom Assembly for Beta 53, Mini 4–pin Connector (TA4F)
Black RPM132
Beige RPM134

Microphone and Boom Assembly for Beta 53, Tinned Leads (No Connector)
Black RPM136
Beige RPM138



STANDARD TEST CIRCUIT • CIRCUIT D'ESSAI • PRUFSCHALTUNG • CIRCUITO DE PRUEBA • CIRCUITO DI PROVA

FIGURE 9 • FIGURE 9 • ABBILDUNG 9 • FIGURA 9 • FIGURA 9

Patent Notice: Patent Des. 451,902

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