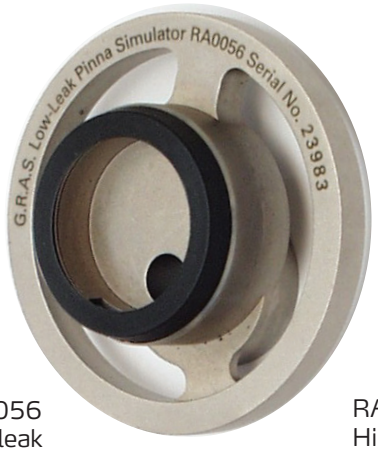
G.R.A.S.
SOUND & VIBRATION

Instruction Manual

RA0056 Low-leak Pinna Simulator ITU-T Rec. P57 Type 3.2

RA0057 High-leak Pinna Simulator ITU-T Rec. P57 Type 3.2



RA0056
Low-leak

RA0057
High-leak

Revision History

Revision	Date	Description
1	28 September 2017	Extracted from Earbook as separate document

Any feedback or questions about this document are welcome at gras@gras.dk.

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Trademarks

Contents

Introduction

These Pinna Simulators (Fig. 1) are for use with the RA0045. In both cases, they screw directly onto the RA0045 as shown in Fig. 2 to simulate a complete ear for testing supra-aural earphones, telephone handsets and loudspeakers.

They differ only in the amount of simulated leakage designed into each, otherwise they are geometrically similar. An ear-canal extension is simulated by the hole that directs the sound to the microphone of the RA0045.

Both comply with the specifications given in:

ITU-T Recommendation P.57 (12/11) "Series P: Terminals and Subjective and Objective Assessment Methods".

Low-leak Pinna Simulator RA0056

Use this for tests which simulate a telephone handset or earphone held comfortably against the listener's ear.

High-leak Pinna Simulator RA0057

Use this for tests which simulate a telephone handset or earphone held slightly away from the listener's ear.

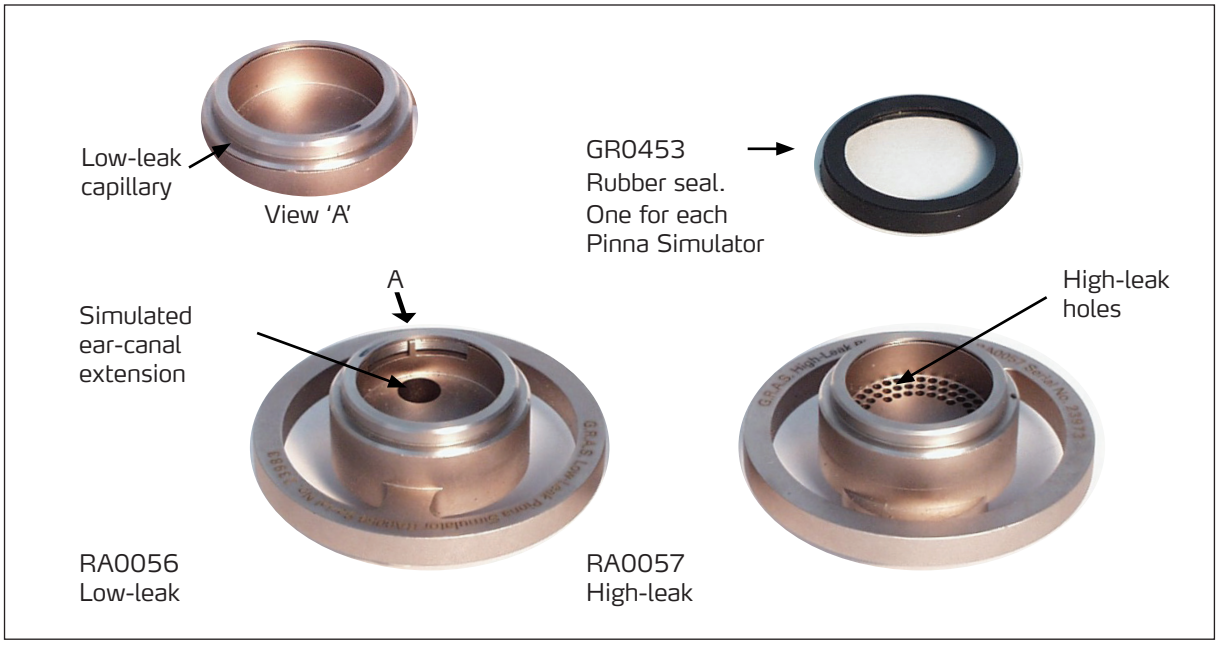

Fig. 1. *Exploded view of all the user-serviceable components of the Pinna Simulators*

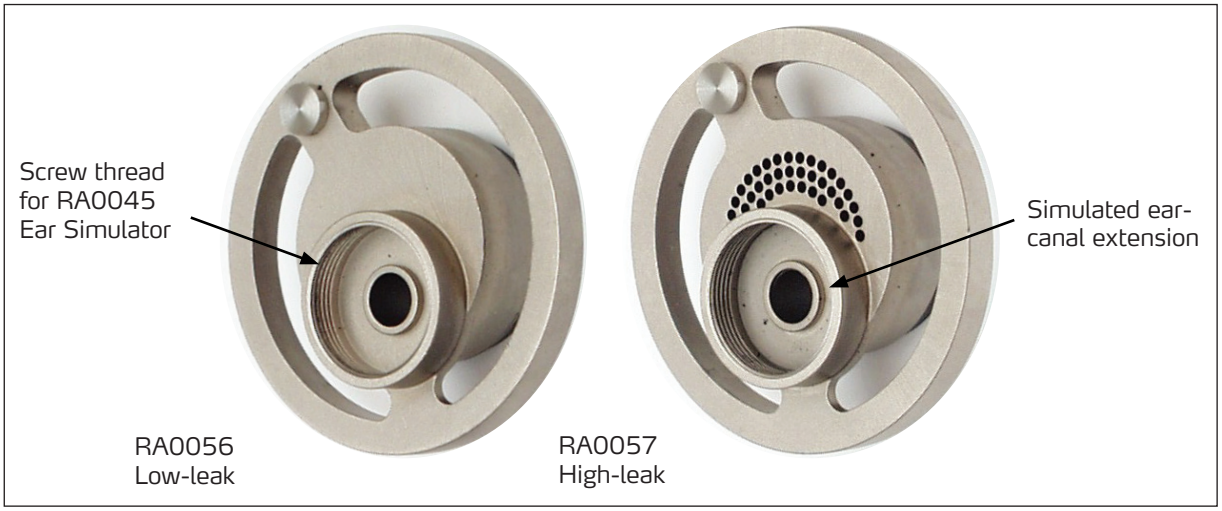

Fig. 2. *Showing the reverse sides of the Pinna Simulators*

Test Situation

In a test situation, the Pinna Simulator (irrespective of which) should be placed centrally over the telephone handset or earphone as shown in Fig. 4, making light contact with the soft rubber seal.

Fig. 3. *Pinna Simulator with RA0045 and 26AK ½" Preamplifier*

Fig. 4. *Place the Pinna Simulator centrally over the earpiece of the telephone handset*

Calibration

Important! do not extract the microphone housed in the RA0045 Ear Simulator since this will invalidate the factory calibration. If it ever becomes necessary to extract the microphone, use the special tool RA0071 available from G.R.A.S.

The Pistonphone must be fitted with a 1" Microphone Coupler RA0023 and used with a special Adapter RA0119, available from G.R.A.S.

1) The set up for the calibration check is shown Fig. 5.
2) Make sure that the rubber seal of the Pinna Simulator seats firmly inside the Adapter.
3) Switch the Pistonphone on.
4) Set the Gain on the power module to 0.
5) Set the analyser to either wide band or to the ⅓ octave band whose centre frequency is 250 Hz.
6) When conditions are stable, note the reading in millivolts.
   For a microphone of nominal sensitivity (12.5 mV/Pa) and a nominal Pistonphone signal of 114 dB, an approximate value for the RA0056 Low-leak Pinna Simulator is:
   - 95 mV (representing a drop of ≈2.4 dB)
7) Repeat, if required, with the RA0057 High-leak Pinna Simulator fitted, a corresponding approximate value is:
   - 15 mV (representing a drop of ≈18.4 dB)

Fig. 5. *Calibration-check set-up. Make sure that the rubber seal of the Pinna Simulator seats firmly inside the Pistonphone Adapter*

For further information about calibration, see the manual for RA0045.

Warranty, Service and Repair

Calibration

Before leaving the factory, all G.R.A.S. products are calibrated in a controlled laboratory environment using traceable calibration equipment.

We recommend a yearly recalibration at minimum, depending on the use, measurement environment, and internal quality control programs.

We recommend calibration prior to each use to ensure the accuracy of your measurements.

Warranty

Damaged diaphragms in microphones can be replaced. The microphone diaphragm, body, and improved protection grid are made of high-grade stainless steel, which makes the microphone resistant to physical damage, as well as corrosion caused by aggressive air or gasses. This, combined with the reinforced gold-plated microphone terminal which guarantees a highly reliable connection,enables G.R.A.S. to offer 5 years warranty against defective materials and workmanship.

The warranty does not cover products that are damaged due to negligent use, an incorrect power supply, or an incorrect connection to the equipment.

Service and Repairs

All repairs are made at G.R.A.S. International Support Center located in Denmark. Our Support Center is equipped with the newest test equipment and staffed with dedicated and highly skilled engineers. Upon request, we make cost estimates based on fixed repair categories. If a product covered by warranty is sent for service, it is repaired free of charge, unless the damage is the result of negligent use or other violations of the warranty. All repairs are delivered with a service report, as well as an updated calibration chart.

Manufactured to conform with:

CE marking directive:
93/68/EEC

WEEE directive:
2002/96/EC

RoHS directive:
2002/95/EC

G.R.A.S. Sound & Vibration continually strives to improve the quality of our products for our customers; therefore, the specifications and accessories are subject to change.