

Instruction Manual

RA0075 6cc Coupler ANSI 3.7 and IEC 60318-3



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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Introduction

The G.R.A.S. RA0075 is a coupler for testing earphones. It uses a 1" microphone.

The RA0075 complies with the requirements of:

- ANSI S 3.7 American National Standard for Testing Earphones.

It is also part of the 43AF Artificial Ear.

Components

The RA0075 comprises the following components:

- RA0075 NBS 9-A Coupler
- GR0572 Stop Collar (to maintain consistent coupler-volume)

The RA0075 is delivered as shown in Fig. 1. It uses a 1" pressure condenser microphone with preamplifier. An exploded view of its user-serviceable components together with a suitable pre-amplifier and adapter, and microphone is shown in Fig. 2.

Preamplifiers

It can use either a 1" preamplifier or ½" preamplifier with an adapter. The example in Fig. 2 shows:

- 26AK G.R.A.S. ½" Preamplifier
- RA0073 G.R.A.S. ½" - to 1" Adapter

Microphones

It uses primarily a 1" pressure condenser microphone (of the type WS1P) with the normal protection grid replaced by a special coupler-adapter ring (shown below). It can also be used with protection grid.

- 40EN 1" Pressure Condenser Microphone fitted with
- RA0074 Coupler-adapter ring



Fig. 1. NBS 9A Coupler RA0075 as delivered

Characteristics

Main Purpose

ANSI specifies the NBS 9A Coupler for calibrating the earphones of audiometers. It has been chosen because of its simple construction and because the threshold transfer data of so many different earphones have already been determined.

Volume

It has a volume of about 5.6 cm^3 which approximates the volume enclosed by a supra-aural earphone on a human ear.

Frequency

The output level of an earphone on a real ear measured below 500 Hz is lower because of leakage and flesh compliance. From 500 Hz to 1500 Hz, it is about the same for both ear and coupler.

Between 1500 Hz and 8000 Hz, the response of the coupler is a fair indication of the earphone's performance. However this cannot necessarily be used as a precise indication of the relationship between coupler and ear because of complex interactions between the earphone and its acoustic load.

Exploded View

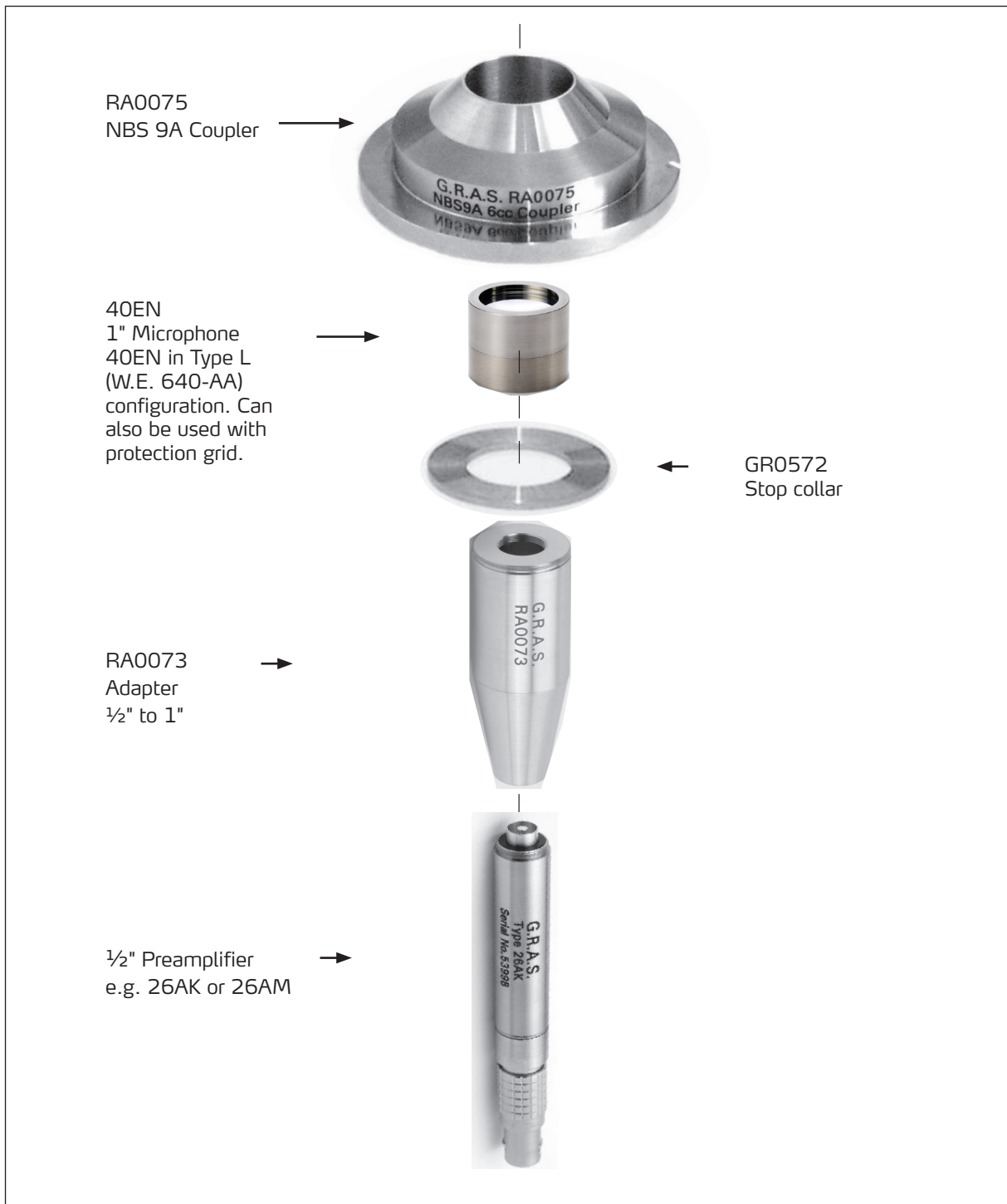


Fig. 2. Exploded view of user-servicable parts with a 1" microphone and a 1/2" preamplifier

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.