



V2104

SELF-POWERED
REFERENCE
MONITORING

OWNER'S MANUAL

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1. INTRODUCTION

Thank you for purchasing this Quested monitor. At Quested, our ethos is to provide reference monitoring; hand constructed using matched components and tested to our high standards. If you take time and care in positioning and aligning the system, you will appreciate why Quested monitors have a reputation for faithful reproduction covering the entire audible spectrum. They are professional monitors and therefore are not designed to flatter but faithfully reproduce. Please take care to maintain the system and it will give you many years of service. You will also be assured the best possible performance and long term reliability of your system.

Please read this manual, which we have kept as concise as possible, it really will help you and covers important safety considerations.

The V2104 is the latest model in Quested's V-Series range of active, powered, monitors. The compact, ported, direct radiator design utilises a 4"/100mm paper cone bass driver and a 1 1/8" / 28mm soft-dome high frequency unit. Power is derived from a 2-channel Class D module, chosen primarily for its sonic performance and also for its compact dimensions. The cool running of Class D enables the mounting of the module directly onto the aluminium rear panel of the speaker enclosure, thus keeping cabinet dimensions to an absolute minimum.

The diminutive size of the V2104 makes it the perfect choice for a portable monitor; the red version is supplied with a rugged carry case. Low frequency performance can be seamlessly extended by using our SB10R sub-woofer depending on speaker configuration. The SB8, a smaller and equally compact 8" subwoofer will suit smaller spaces where low end extension is required. Ceiling and wall mounts are available.

2 SAFETY CONSIDERATION

2.1 General

Before proceeding to connect your Quested monitor to the AC power supply, please read the following safety information:-

CAUTION: RISK OF ELECTRICAL SHOCK. REFER SERVICING TO QUALIFIED PERSONNEL THE POWER CORD MUST ALWAYS BE REMOVED BEFORE THE AMPLIFIER IS DISMANTLED.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

WARNING: THIS APPLIANCE MUST BE EARTHED.

The cores in the supplied mains lead are colour coded in accordance with the following code:

Green and Yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of these wires may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire, which is coloured green and yellow, must be connected to the terminal in the plug, which is marked with the letter 'E' or by the earth symbol, or coloured green and yellow.

The wire, which is coloured blue, must be connected to the terminal in the plug which is

marked with the letter 'N' or coloured black.

The wire, which is coloured brown, must be connected to the terminal in the plug which is marked with the letter 'L' or coloured red.

NOTE: For certain countries the power cord will be supplied with an integral moulded plug to satisfy national safety standards.

2.2 Hearing damage

This equipment can deliver sound pressure levels in excess of 100dB. At this level permanent hearing damage can occur and exposure to this level of sound, even for relatively short periods (see table below), can be harmful. Of equal importance to the maximum level of sound is the exposure to high levels of sound for extended periods. There are no internationally agreed limits and different countries have different limits, which are measured in differing ways. IT IS THEREFORE IMPORTANT THAT THE USER ESTABLISHES THE RECOMMENDED, AND IN SOME TERRITORIES, LEGAL LIMITS WHICH ARE IN PLACE.

As a guide the table below shows the levels that are acceptable in the majority of Western Europe, the US and Canada.

dB(A)	Listening time per day
90	8 hours
95	2.4 hours
100	40 minutes
105	15 minutes
110	5 minutes
115 and over	Not at all

It is also important to note that the effect of exposure to sound is cumulative. Having listened to sound, for example for 15 minutes at 105dB, then further exposure to noise levels above 80dB should be avoided until the next day.

3 UNPACKING

This Quested product has been carefully manufactured, tested and packed to ensure that it arrives in a flawless condition. The component parts of the packaging have been thoughtfully designed to offer sufficient protection during transportation yet remain reusable and should be retained for future use. Also included in a separate bag will be the appropriate power cord. In the event the packaging is no longer required, we are pleased to say all packaging can be recycled at your local recycling centre or through your street side collection service.

4 INSTALLATION

4.1 Positioning

The **V2104** is designed to be mounted vertically but will also function if turned on its side. The **V2104** is tolerant of a variety of mounting positions including stand, shelf, table or wall mounting. Whichever way is chosen, the support should be rigid and must not vibrate when the monitor is driven. Vibrations will result in lack of low frequency definition. The optimum location for the monitors within a room is best determined by experimenting and placing the speaker in a variety of positions. The shape of the room, normal listening position and room treatment will all have an effect on determining the speakers' final positioning.

4.2 Grille

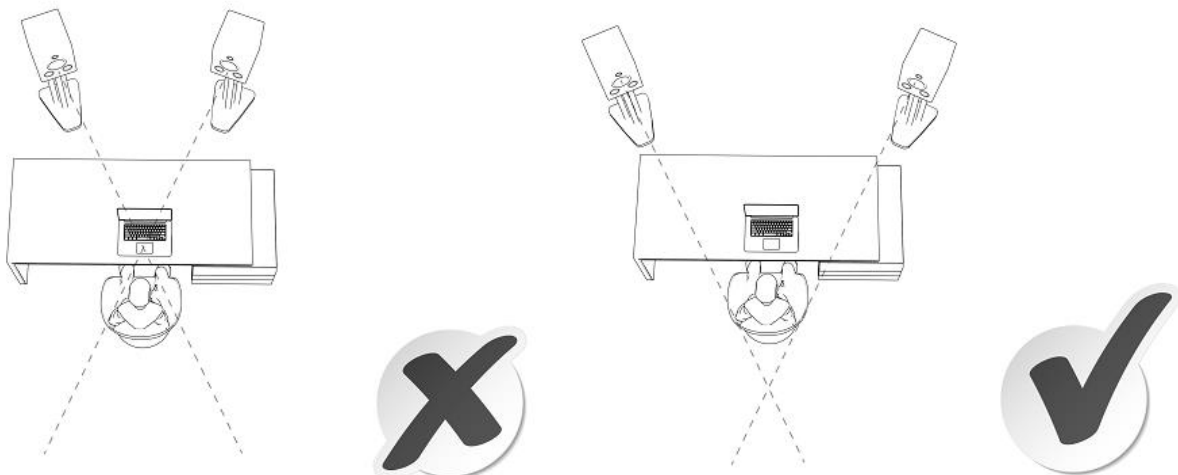
The **V2104** is shipped with a cloth grille, which will offer some protection to the tweeter and bass driver. It is not designed to protect the speakers during transit and it is recommended that the original packing should be retained for this purpose. Like all types of speaker protection or covering, the grille makes a small difference to the HF acoustic performance, which, for the majority of users, will not be noticeable.

4.3 Aligning Speakers

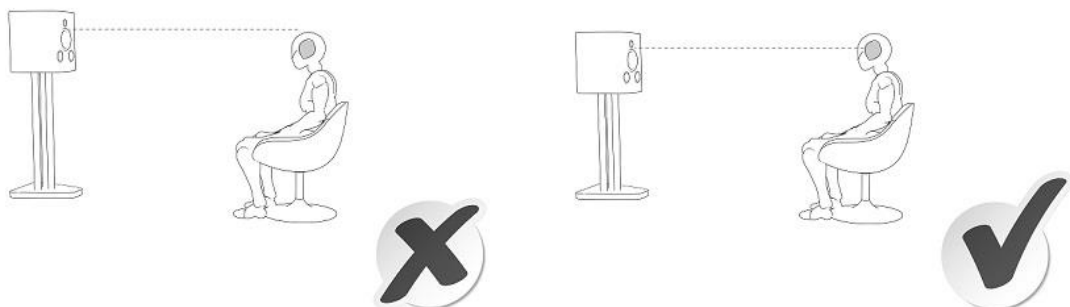
The speakers should be positioned so that the axis (an imaginary line drawn from the acoustic centre of the left and right monitor – see line drawing on pages 14 and 15 of this manual) should cross between 0.5 and 1 metre behind the engineer's ear position, for the following reasons:-

- a) To obtain the most accurate imaging, both front to rear and side to side and also to achieve as large a listening area as possible so that the engineer can move and operate the console or mix interface without perceiving a change in character of the monitors.
- b) To enable listening for long periods of time without suffering strain or fatigue.

Below is a sketch showing positioning of speakers. The **V2104** is suitable for a wide variety of applications, therefore the distance apart may range from less than 1 m and up to 2 m. However, the principle of the triangle and the axis of the 2 speakers crossing behind the listening position remains.



The height and angle of mounting the speaker is equally as important. The correct height and angle should result in the axis being at ear level when the engineer is sitting in his/her normal position at the console.



4.4 Wall Mounting/Stand Mounting

The **V2104** has built in mounting points that are located on the base of the cabinet and are suitable for our wall mount brackets (part no. WB50). The position of the mounting points are indicated on the line drawing on page 13 of this manual. **BRACKET MOUNTING OF ANY HEAVY SPEAKER INVOLVES SERIOUS SAFETY ISSUES. IT IS IMPORTANT TO FOLLOW THESE GUIDELINES CAREFULLY AND TO READ THE INSTRUCTIONS THAT ACCOMPANY THE MOUNTING HARDWARE.**

When fixing the mounting plate to the loudspeaker:

- The bolt length must always penetrate at least 20 mm into the cabinet base. Our brackets come with the correct bolts to attach the mounting plate to the base of the associated cabinet.
- Always use locking washers and thread lock compound.
- Always use all of the bolts supplied.
- Because the cabinet is a source of vibration, the bolts must be properly tightened, but caution must be exercised as over-tightening could damage the case. Always tighten the bolts a little at a time in order to spread the stress over the area of the mounting plate. If a torque wrench is available the recommended final torque is 6 Nm. A 200 mm (8") spanner will achieve the appropriate torque without needing hard work.
- If a WB bracket is being used **USE CAUTION WHEN ORIENTATING THE MONITOR AT SHARP DOWNWARD ANGLES OF MORE THAN 30°. THE CENTRE OF GRAVITY IS MOVED FORWARD CAUSING HIGH BENDING TORQUE AT THE WALL PLATE JOIN AND THE CABINET FIXING POINTS (IF IN DOUBT ASK.)**
- The cabinet may safely be suspended upside down from a ceiling or top mounted bracket. Please contact Quested for further information on ceiling mounting.

IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT THE BUILDING STRUCTURE AND WALL/CEILING FIXTURES ARE STRONG ENOUGH TO SAFELY BEAR THE IMPOSED LOAD.

The mounting plate holes are sealed by M6 x 16mm nylon countersunk machine screws. These will need to be removed before the cabinet can be screwed onto the mounting bracket.

THESE NYLON SCREWS SHOULD NOT BE USED TO MOUNT THE CABINET, THEY ARE NOT OF SUFFICIENT STRENGTH. A STEEL MACHINE SCREW OF AT LEAST 25 mm IN LENGTH SHOULD BE USED FOR THIS PURPOSE. If the **V2104** is subsequently removed from the bracket, the mounting holes will need to be re-sealed using the nylon screws or some other suitable sealant.

4.5 Electrical Connection

4.5.1 Safety Earthing

This product has been designed to comply with international safety standards. It is essential that the green/yellow core of the mains cable, or the ground pin of a 3-pin molded plug, is connected to the electrical installations safety earth or ground. It is internally connected to all exposed metal surfaces and it is essential for personal safety as well as proper operation of the product. The audio signal input is electronically balanced and does not need the disconnection of any safety earth for the avoidance of hum loops.

4.5.2 Voltage and Mains Fuse Setting

This revision "C" of the V2104 has a universal power supply. This means it can be used over the following range of voltage: 100 – 240v.

There is no requirement to change any fuses or make changes to the circuitry.

4.6 Audio Connections

The audio signal input is RF filtered and electronically balanced to ensure a high level of rejection for common mode interference signals and to give a professional connection to external equipment. It is essential for optimal use of these specifications that a professional grade, balanced, two-core screened cable is used.

Source Balanced Pin 2 hot

In accordance with international standards, 3-pin XLR style input connectors are used, with pin 2 being designated the 'in-phase' or 'hot' terminal and pin 3, the 'out of phase' or 'cold' terminal. Pin 1 is connected to the chassis ground and **must** be connected to the screen of the audio interconnecting cable. This is necessary to ensure proper compliance with European Standards for Electromagnetic Compatibility. Pin 1 carries no signal voltages or currents and is provided purely for screening purposes. It should not be connected to either pin 2 or pin 3.

Source Unbalanced Pin 2 Hot

If the equipment providing the audio signal has an unbalanced output, then the interconnecting audio cable should be wired so that the hot output of the source is connected to pin 2 of speaker input XLR and the ground of the source connected to pin 3. The screen of the interconnecting audio cable should be connected to pin 1 of the input connector *only*. **There must be no connection between the ground connection of the unbalanced output and the pin 1 ground connection of the input connector.**

Source Unbalanced Phono

If the source output is a phono socket, then the centre pin of the phono plug should be wired to pin 2 of the speaker input XLR and the outer phono casing to pin 3. The wire from pin 1 of the XLR will not be connected to the terminals of the phono plug. Strict adherence to this will help to eliminate ground loop hums and RF break through.

5 OPERATIONAL CONSIDERATION

5.1 Mains On-Off Switching

On-Off switching is provided by a push switch on the front face.

5.2 Front Panel Indicators

A bi-functional LED has been incorporated into the On-Off switch. On power-up the LED will be blue and is ready for normal operation. The LED will flicker red with music peaks to indicate that the amplifier is 1db under clip. The clip indication should be used as a guide that the amplifier is approaching clip, which should be avoided for audible integrity. Driver damage may occur if the amplifier is pushed continuously into the red.

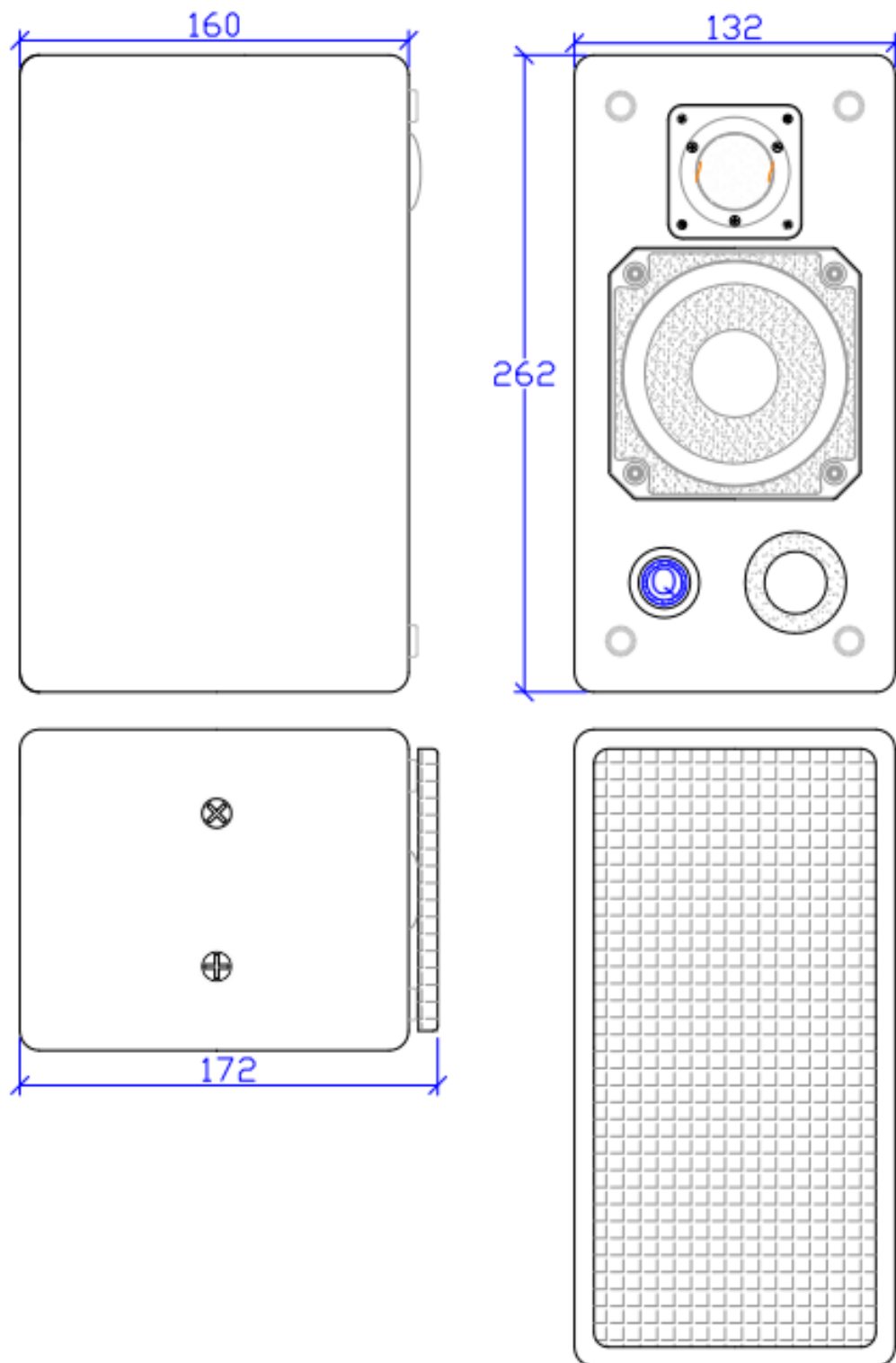
5.3 Signal Level

Input sensitivity can be adjusted with the eleven position rotary potentiometer located on the rear panel. The control has a 16dB range and can accurately set the SPL level for a known input signal level. With the pot set at the 0dB position, 0dBu of pink noise will produce 94dB SPL at 1 meter.

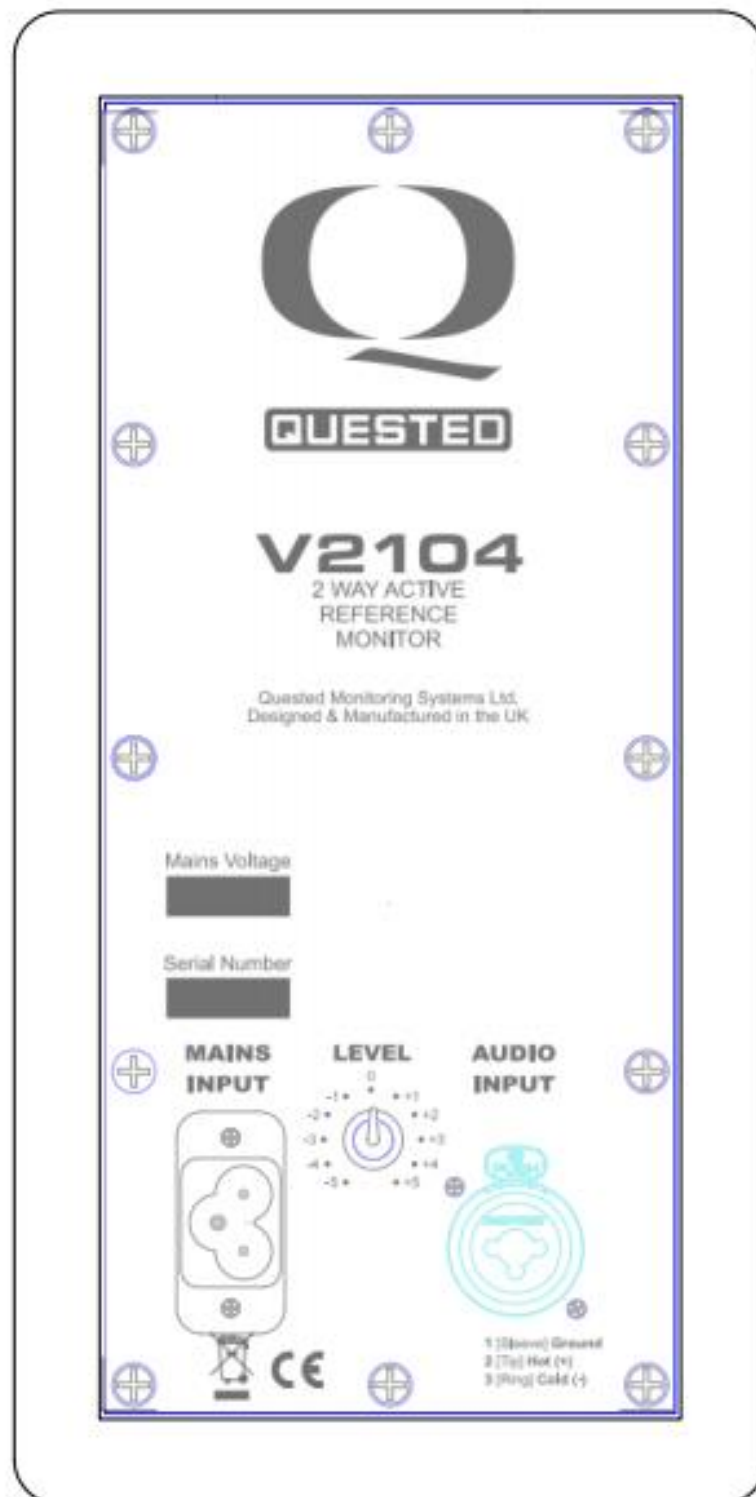
When combining the V2104 with another V-Series monitor, such as the V2108, the level pot on the V2104 should be set to +2 and the recessed rotary pot on the V2108 should be set to 0. This way the output level will be matched.

6 V2104 TECHNICAL INFORMATION

6.1 Cabinet Line Drawing



6.2 Rear Panel Artwork Detail



6.3 Specification

Dimensions:	132(w) x 262(h) x 160(d) mm
Weight:	3.5 kgs
Drivers:	Bass cone – 1 x 100 mm (4") High Frequency soft dome – 1 x 28 mm (1 1/8")
Maximum Cont. SPL:	100dB pink noise @ 1 m prior to full clip
Frequency Response:	100Hz - 20kHz $\pm$ 2 dB 88Hz -6dB
Connector:	XLR and 1/4 inch Jack combo socket
Impedance:	10k Ω electronically balanced with RF filters
Wiring:	Pin 1 ground Sleeve Pin 2 hot Tip Pin 3 cold Ring
Sensitivity:	Rear mounted 11 position rotary potentiometer. Minimum sensitivity +5dBu for 94dB SPL @1m Maximum sensitivity -11dBu for 94dB SPL @1m
Protective lower filter:	-3dB @ 45 Hz, 24dB/oct
Protective upper filter:	-3dB @ 30 kHz, 24dB/oct
Crossover:	1k67Hz

POWER AMPLIFIER

LF Output Power:	70W RMS continuous (note 1)
HF Output Power:	70W RMS continuous (note 1)
THD:	Typ 0.01% @ 1 kHz.

NOTE 1: The continuous rating is for a period not exceeding 5 minutes with unrestricted airflow (100 mm clearance) around the amplifier heatsink and an ambient temperature not exceeding 25°C.

INDICATORS

Power On:	Front mounted blue LED in combined On-Off switch indicates power applied.
Clip:	Red LED in combined On-Off switch indicates 1dB before amplifier clip.

POWER REQUIREMENTS

Mains Input Voltage:	Universal Mains 100-240v, 50-60Hz. 4A max.
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IDLE CONSUMPTION

Max:	10W at 230v (average music)
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ENVIRONMENTAL CONDITIONS

Temperature:	Not recommended to be used in conditions below 0°C or above 45°C
Altitude:	Not recommended to be used in conditions above 2000m above sea level

This product is built to conform to the requirements for CE marking.

7 GUARANTEE

The **V2104** electronics are guaranteed for 5 years from date of purchase. All other parts are guaranteed for 12 months. If any part of the product is found to be defective because of faulty manufacture within these periods, Quested, through its authorised distribution network, will effect repair or replacement, at its discretion, free of charge providing that:

- a) The fault is reported to the authorised distributor.
- b) Proof of purchase is provided.
- c) The fault is not caused by misuse, neglect, or faulty operation by the user.
- d) The fault is not a result of fair wear and tear.
- e) The equipment has not been modified in any way.
- f) The equipment has not been taken apart or tampered with in anyway other than described in the service manual for the adjustment and replacement of user accessible items.

The guarantee does not cover:

- a) Damage during transit
- b) Damage to diaphragms, cones and other speaker parts as a result of the over-driving of the monitors or by faulty installation or connection.
- c) Damage caused by incorrect installation or during installation caused by incorrect handling.
- d) The cost of carriage to or from the authorised repairer.

8 APPENDIX

8.1 Accessories

Quested WB50 and CB50 wall and ceiling mount brackets

8.2 Spares

LS100 bass driver
TW40 soft dome tweeter
RD40 replacement tweeter diaphragm

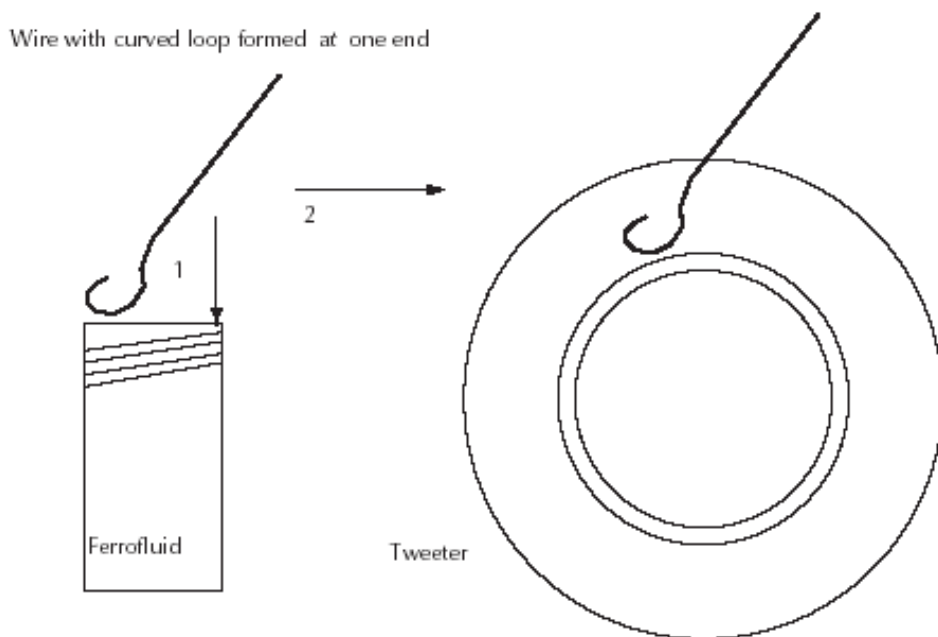
8.3 Driver Replacement Procedure

If it is necessary to replace the bass driver, place the cabinet on its rear and, using a 2.5mm hex head driver, remove all of the bolts. As with most objects held by a series of bolts, these bolts should initially be loosened a little, one at a time rather than each bolt being fully removed whilst the other bolts remain fully tightened.

Tweeter replacement procedure

The tweeter is secured by 4 x M4 machine screws. Remove these with a 2.5mm hex driver. Take out the tweeter and disconnect the two wires, noting which colour goes to which terminal. If on removing the 4 screws that hold the tweeter there is any difficulty in removing the unit, do not try to force a blade between the cabinet and tweeter, but use a small narrow bladed screwdriver in one of the screw holes to gently lever out the tweeter. If it is necessary to replace the diaphragm:

- a) Remove the 3 pozi screws on the front plate of the tweeter using a number 1 pozi driver. Remove ident label so the 2x lead in wires are exposed and desolder until you are able to untwist and separate the wires.
- b) Remove diaphragm assembly and replace with the new diaphragm. The ferrofluid has the appearance of oil and is dark brown in colour and should cover about 1/3 of the coil. If there is less than this then additional ferrofluid should be added (generally the fluid will only need to be added after you have changed the diaphragm 2 or 3 times). This can be obtained from your dealer/distributor or directly from Quested. It should be noted that ferrofluid is best added as shown in the diagram below and not from the syringe that it is dispensed in. The fluid should never cover more than 1/2 the coil.
- c) Re-assemble when complete.



Dip wire in ferrofluid, a small amount will be retained on the wire. Hold wire over the tweeter gap and the magnet will attract the fluid from the wire into the gap. Do this 3 or 4 times in different position on the tweeter, then check by inserting the new diaphragm to see the amount of fluid in the tweeter.

In the event that the tweeter has been very badly blown, the voice coil may have disintegrated in the magnet assembly and will be irreparable. If this is the case, a whole new tweeter will be required.

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