



**QLIGHT™ SERIES
TQ-425**

USER MANUAL

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Thanks

Thank you for choosing a TURBOSOUND TQ-425 loudspeaker product for your application. Please spare a little time to digest the contents of this manual, so that you can obtain the best possible performance from this unit.

All TURBOSOUND products are carefully engineered for world class performance and reliability.

If you would like further information about this or any other TURBOSOUND product, please contact us. Detailed product information is available on our web site at www.turbosound.com

We look forward to helping you in the near future.

Unpacking the TQ-425 loudspeaker

After unpacking the unit please check carefully for damage. If damage is found, please notify the carrier concerned at once. You, the consignee, must instigate any claim. Please retain all packaging in case of future re-shipment.

Introduction

Congratulations, you have just purchased a professional loudspeaker system from the renowned Turbosound range, designed to give you the best in audio quality and many years of reliable, trouble free operation. It offers superior audio quality, full technical documentation, and rigging and flying hardware options. Please read through this manual carefully before you attempt to operate the loudspeaker system. It contains valuable information enabling you to quickly and easily set up and connect the loudspeakers, important system and set-up checks together with positioning and mounting instructions.

Features

- ◆ **Superb audio quality:** carefully designed and matched 15" LF loudspeaker drive units are used to give you exceptional performance and many years of reliable, trouble free operation.
- ◆ **Wide dynamic range:** the drive units are capable of handling large amounts of amplifier power in order to achieve high SPL without losing headroom.
- ◆ **Solid construction:** all Turbosound QLight series cabinets are built from high grade birch plywood, rebated, screwed and glued together for maximum rigidity and durability.
- ◆ **Integral rigging points:** fitted as standard, enabling use with optional Turbosound flying hardware.
- ◆ **Compact enclosure:** the overall dimensions of the TQ-425 have been kept as small as possible to enable portable use as well as permanent installations.

Product Summary

The TQ-425 is a front loaded vented subwoofer designed to combine with QLight series enclosures to give a high quality, full range sound reinforcement system ideally suited to all corporate, industrial, theatre and audio visual applications.

The TQ-425 consists of two 4" voice coil, 15" low frequency drivers in a compact vented enclosure, optimally tuned to reproduce high sound pressure levels at bass and sub-bass frequencies.

The TQ-425 is designed for use with the LMS-D6 digital loudspeaker management system, which provides 24dB/octave crossovers and a wide range of factory preset programs for QLight series and other Turbosound products.

The enclosure is constructed from 3/4" (18mm) birch plywood, heavily braced internally, glued and screwed together for maximum strength. It is finished in a durable black semi-matt textured paint (also available in TurboBlue™ textured paint). The loudspeaker drive units are protected by a foam/expanded steel mesh grille.

Flush handles are provided for easy lifting and carrying, and a pole mount socket is included on the top to allow QLight series enclosures to be mounted at the correct distance above the subwoofer. In addition, steel flying strips are optionally available to enable the TQ-425 to be permanently installed in either a vertical or horizontal orientation.

Two Neutrik Speakon connectors provide input and loop out connections to the enclosure. The TQ-425 is fitted with four heavy duty wheels to enable easy transportation.

System Requirements

The TQ-425 is a passive (non-powered) loudspeaker system. It requires the use of one amplifier channel for correct operation. Frequency splitting between the low frequency enclosure and the mid-high frequency enclosure is accomplished by an external electronic crossover. The LMS-D6 loudspeaker management system is recommended for this purpose.

Amplifier considerations

Turbosound speaker enclosures should be driven by high quality power amplifiers designed for true professional use. Such amplifiers will have balanced inputs, DC and RF fault protection, and well designed cooling systems for reliability.

The program power listed in the loudspeaker's technical specification is the best guide to the size of amplifier required for general purpose applications. The amplifier should therefore be capable of delivering long term broadband power equal to the loudspeaker's program power rating at the loudspeaker's stated nominal impedance. This approach allows sufficient headroom to generate good dynamic range.

RECOMMENDED AMPLIFIER POWER RATINGS:

The amplifier's rated r.m.s. continuous power output (20Hz – 20kHz, per channel) should be equal to the program power handling of the loudspeaker at its nominal impedance.

In general, the more powerful the amplifier the better it will sound, provided that it is not driven into sustained clipping. It should be understood that overdriving an insufficiently powered amplifier is more likely to cause loudspeaker damage – the total energy in a heavily clipped signal is far higher than in an unclipped signal – than operating a more powerful amplifier within its ratings.

One controller can be used to feed several amplifiers as long as all the amplifiers are the same (or have the same gain ratings). More than one controller may be required if the amplifiers are of different gain or type. Please contact your dealer if you require help in this area.

Equalisation

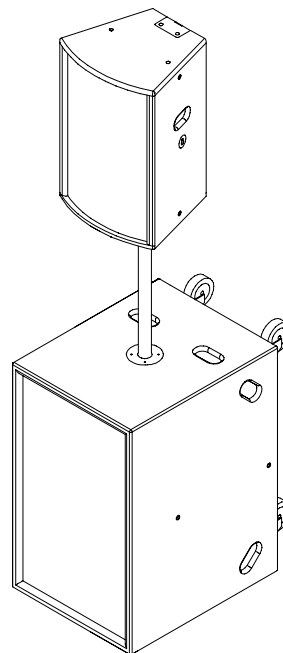
In order to compensate for the room acoustics, the TQ-425 requires only minimal equalisation. As in any system, over-equalisation introduces phase shifts, distortion and a reduction in headroom, usually causing more problems than it cures.

Under most circumstances a 1/3 or 1/2 octave graphic equaliser will generally be adequate, with the fader settings applied smoothly and as little as possible for the required room compensation. Most rooms will have resonances that will be excited at particular frequencies needing some *cut* to help tame the sound, these problems are most pronounced at the lower frequencies where speakers generally exhibit very little directional control. If you find that the system needs a lot of *boost* at lower frequencies you may need additional sub-bass units as stated above. It is good practice to use as little equalisation as possible, aiming to cut frequencies rather than adding large amounts of boost.

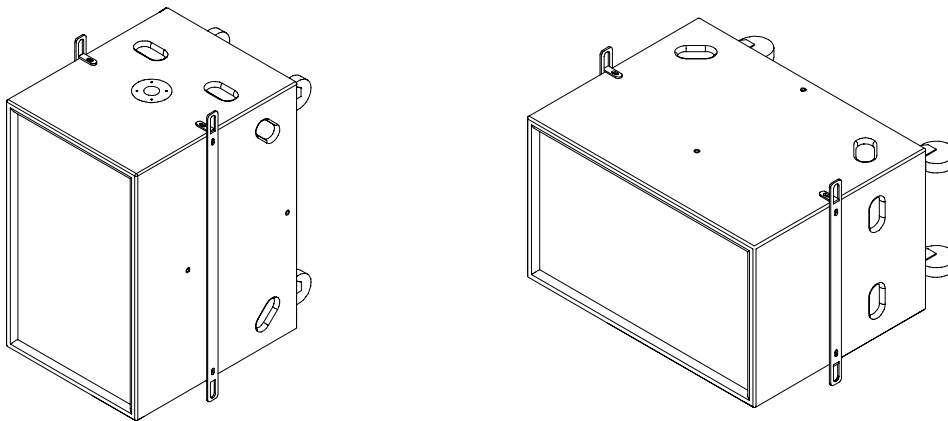
Mounting and Fixing

A versatile range of mounting hardware is available for the TQ-425 that allows it to be used in a variety of ways, in either mobile applications or permanent installations.

A top hat stand type fitting is mounted in the top of the cabinet to allow complementary QLight enclosures such as the TQ-440 to be mounted at the correct distance above the subwoofer using a straight 35mm pole.



Side-mounted flying strips can be fitted to the sides of the cabinet to enable enclosures to be flown as part of a permanent installation. Two different lengths of flying strips are optionally available for flying the enclosure in either a vertical (FF-425L) or horizontal (FF-425S) orientation. These are fitted by removing the countersunk bolts on the top and sides of the cabinet and replacing them with the M10 bolts provided with the hardware. Two flying strips are required for each enclosure. This method offers a simple and cost effective method of flying single or multiple TQ-425 enclosures, with the load being taken through the steel strips rather than through the woodwork of the enclosure. Enclosures may be arranged in a vertical column by coupling the flying strips together using QL-75 quicklinks or shackles.



WARNING: Rigging eyebolts must not be used for flying this enclosure. You must use the optional Turbosound steel flying strips described above.

Any installation, whether temporary or permanent, must be securely attached to the structure of the building using chain, steel wires or web straps which are certified and load rated for the purpose. The combined weight of the sound system, its cables and the rigging system must be safely carried by the points at which attachment is made to the building or structure. Great care must be taken in selecting the attachment points and methods, being absolutely sure of the load carrying capacity of points chosen.

NOTE: The rigging of loudspeaker systems is an extremely serious matter with potentially lethal consequences should anything go wrong. It is of vital importance that you, or other people rigging the system, are suitably qualified to do so and have a full understanding of all the factors involved with safety as a number one priority. Turbosound accepts no responsibility for any accident, damage or failure of any rigged system. This rigging information is specifically related to the requirements of the TQ-425 only. For more detailed information on the whole topic of rigging various handbooks are available. If you are in any doubt contact your Turbosound dealer who will be able to refer you to an experienced rigging company.

Choosing the best location

When using any QLight system, certain room parameters will affect the resultant sound quality and coverage. For example, any boundary like a wall or floor will lift certain frequencies. If you are placing the unit in a corner then a lift at the bass end is to be expected and it may sound rather boomy. This can be compensated for moving the speaker or cutting low frequencies with a graphic equaliser.

When speakers are flown in free space then boundary effects are minimised. The result is a smooth frequency response without any boost at odd frequencies, but the bass end may appear subjectively light. In this case increase the sub-bass level to bring the low end up.

The relationship between sound pressure level and distance is an "inverse square law" so remember that every time the distance from the sound source is doubled the sound level decreases by 6dB. For every 3dB increase of speaker output you need a doubling of input power and you can work out the wattage input needed to give the required SPL levels at various distances from the loudspeaker(s).

Maintenance

If either of the drive units in the cabinet should cease functioning and needs a replacement recone you are advised to remove the faulty unit from the cabinet and send it to a professional recone service authorised to recone Turbosound loudspeakers. This will ensure the continued high performance of your TQ-425.

Removal of the 15" drivers

1. Unscrew the eight countersunk screws from the two vertical battens which hold the protective grille in place. Set the battens, grille and fixing screws aside for later re-assembly.
2. Undo the eight M6 x 30mm Allen head bolts holding the driver in place and carefully pull it out and away from the cabinet. **WARNING** - This unit is heavy! Disconnect the cables from the drive unit and completely remove the driver from the cabinet. Make a note of the driver polarity for later reconnection.
3. To reinstate the drivers, simply reverse the above procedure making sure you observe the correct polarity when reconnecting the cables back into the terminals of the drive units.

For any other servicing requirements please contact your Turbosound dealer or authorised service centre.

APPENDIX A

Technical Specifications

Dimensions	836mm x 511mm x 632mm (32.9" x 20.1" x 24.9")
Net weight	68kgs (149.6lbs)
Components	2 x 15" (381mm) LF drivers
Frequency response	45Hz – 200Hz ±4dB
Maximum SPL	132dB continuous, 138dB peak
Construction	18mm (3/4") birch plywood throughout; rebated, screwed and glued. Finished in black semi-matt textured paint. Recessed carrying handles. Integral 35mm pole mount
Grille	Reticulated foam on expanded steel mesh
Connectors	(2) x Neutrik Speakon NL4MP, wired pin1+:+ve, pin 1-: -ve
Options	TurboBlue semi-matt textured paint

Due to continuing product improvement the above specifications are subject to change.

APPENDIX B

Spares and accessories

LS-1518	15" (381mm) LF loudspeaker
RC-1518	Recone kit for LS-1518
MG-425	Replacement foam / metal grille

Flying accessories

FF-425L	Flying strips (2 required per enclosure) for vertical orientation
FF-425S	Flying strips (2 required per enclosure) for horizontal orientation

APPENDIX C: WARRANTY

Limited Warranty

This Turbosound loudspeaker product is warranted to the original end-user purchaser and all subsequent owners for a period of two (2) years from the original date of purchase.

Warranty Coverage

Warranty coverage includes defects in materials and workmanship. It does not include:

- ◆ damage caused by accident, misuse, abuse, neglect or modification by any person other than an authorised Turbosound representative,
- ◆ damage caused by failure to operate the product in accordance with the instructions contained in the user manual,
- ◆ damage occurring during shipment in transit,
- ◆ claims based on any misrepresentation by the seller,
- ◆ products which do not have the original components as specified in the product engineering information,
- ◆ products on which the serial number has been removed or defaced.

Shipping

Should any fault develop with a component of your Turbosound system, please return the product, freight pre-paid, in its original packing carton, along with proof of purchase such as the original bill of sale or receipted invoice, and a description of the suspected fault to Turbosound Ltd. (Att: Customer Service), Star Road, Partridge Green, West Sussex RH13 8RY, England, or your local authorised Turbosound representative. The product serial number must be quoted in all correspondence relating to the claim. Insurance is recommended, as Turbosound or its representatives are not liable for loss or damage in transit. Turbosound will pay for return freight costs should repairs be covered under warranty.

Incidental and consequential damages

Turbosound's liability is limited to the repair or replacement, at our option, of any defective product, and shall not be liable for any incidental and consequential damages including, without limitation, injury to persons or property or loss of use.

Limitation of implied warranties

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

This warranty is in addition to, and in no way detracts from, your statutory rights as a consumer. No other warranty is expressed or implied.

Please record your purchase information below for future reference:

Dealer Name

Dealer Address

.....

.....

Post / Zip Code

Dealer telephone / fax

Invoice number

Date of purchase

Unit serial number

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