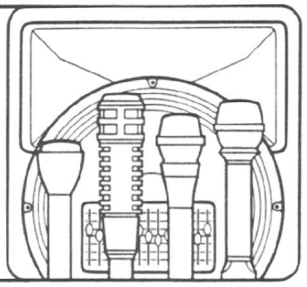
Electro-Voice® INC.
a MARK IV company
600 Cecil Street,
Buchanan, Michigan 49107
TWX: 810-270-3135
Phone: 616/695-6831

Pro Sound Facts



No. 10 — September 1987

MT-4 "FLYING MANUAL" AVAILABLE
MTH-4 NOW WITH EP-8 CONNECTOR

TO: Professional Sound Reinforcement Contractors,
Consultants, Pro Audio Dealers, Full-Line
Music Dealers

With the availability of factory-installed aeroquip "flying" hardware for MT-4 cabinets, many dealers and installers have asked questions regarding recommended array configurations. The enclosed guide will answer these questions and gives the pin positions on the track to achieve proper cabinet orientation. (You no longer have to hang the cabinets in your shop and balance the arrays using trial-and-error guesswork!)

Also, enclosed is a fact sheet that announces a running change to the Cannon EP-8 connector on the MTH-4 cabinet.

As always, please feel free to contact me if you have any questions or require additional information.

Sincerely,

Alan B. Shirley

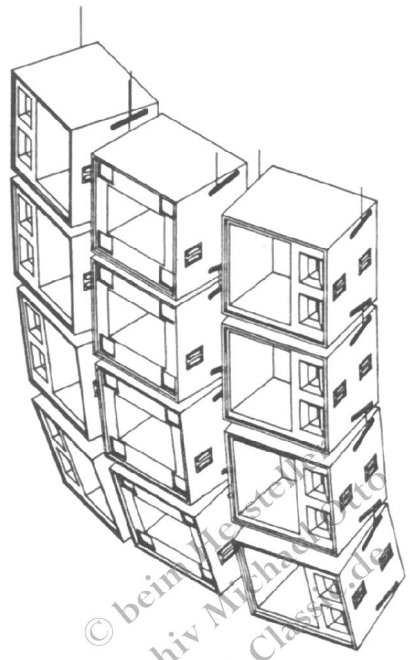
Alan B. Shirley
Marketing Development Manager

Enc.

SOUND IN ACTION™

Electro-Voice®
a MARK IV company

The MT-4 Flying Option User's Guide



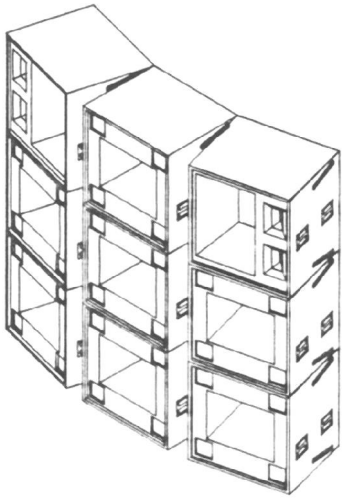


TABLE OF CONTENTS

THE MT-4 CONCEPT

To achieve the SPL coverage required for high-level sound reinforcement, large loudspeaker arrays are needed. These arrays consist of many drivers in many boxes aimed in much the same direction. The consequence is overlapping coverage patterns resulting in lobing and interference patterns throughout the audience area. Because the MT-4 concert sound system uses four drivers on each horn in each frequency band — a format unique to Manifold Technology™ — less MT-4 enclosures need to be hung to achieve the required SPL than necessary with conventional boxes. The result is smaller arrays. Additionally, the MT-4 maintains a true 60° x 40° constant-directivity pattern, both horizontally and vertically. Fewer sources and constant directivity in an array means less destructive interference for better audience coverage and more even sound throughout the listening area.

The MT-4 lends itself to easy array construction. It is a two-box system with identically dimensioned modules. With grilles in place, the MTL-4 low-frequency module is indistinguishable from the MTH-4 midbass/midrange/high-frequency module. This allows the option of either flying the bass or stacking woofers on the floor for maximum efficiency — or even a combination of the two — while still preserving the uniform appearance of both the ground stack and the flown array. The mid/high box is symmetrical top-to-bottom, allowing the creation of mirror-image arrays by simply turning the cabinet upside down. Additionally, the box front is perfectly square, allowing even more flexibility in array construction by the ability to rotate the 60° x 40° MTH-4 pattern for wider vertical coverage, without changing the array shape or size.

Because sound coming from numerous loudspeakers should arrive at any seat at the same time, the speakers in an array should be curved as if mounted on the outside of an imaginary sphere. The speakers must be close-spaced to minimize lobing and maximize coupling, and each speaker must be accurately aimed. The apparent source then becomes the single point at the center of the sphere. The horizontal curve is simply achieved by hanging the cabinets closely spaced, aimed outward at diverging angles. The vertical curve is much more difficult to obtain. The MT-4 utilizes a unique two-point suspension system, shown in Figure 1, and is the only commercially available system that achieves all of the design goals for true point source array design. To tilt the MT-4 enclosure, straps attached on two sides of the enclosure are moved back along tracks which angle toward the cabinet's edge. Moving the attachment point towards the back automatically increases the space between the cabinets to accommodate the greater angle, but the length of the strap remains the same.

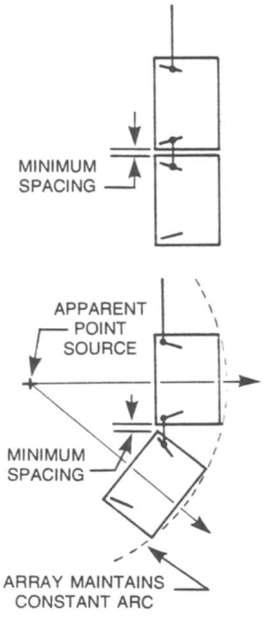


FIGURE 1 — The Unique MT-4 Two-Point Flying System

THE MT-4 BASIC PRIMER

Anatomy of the MT-4 Flying System

A basic four-cabinet flying system is shown in Figure 2, illustrating the integral components that make up a typical MT-4 system. The top cabinets are the starting points for constructing the array. These cabinets are first secured to a grid through the use of two grid straps per cabinet (the Electro-Voice GS-1 grid straps are recommended).

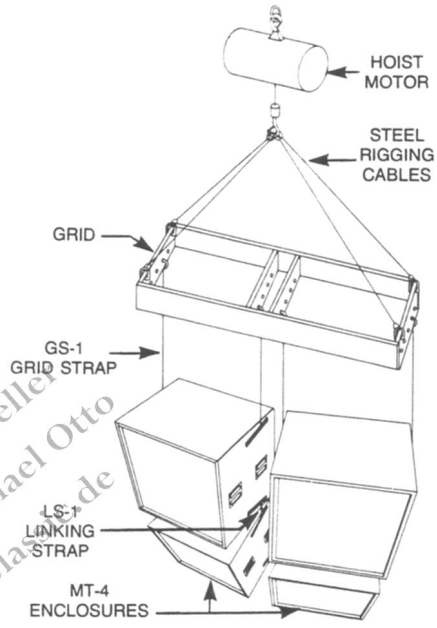


FIGURE 2 — The Anatomy of an MT-4 Flying System

The MT-4 cabinets are equipped with two pieces of track to which the grid straps attach. The linear positioning of the attachment point determines the vertical angling of the cabinet. The remaining ends of the grid straps are then secured to the cross members of the grid. The relative positioning of the straps along the cross members determine the relative horizontal angle between the two cabinets. A second row of cabinets may be added below the original two by utilizing linking straps (the Electro-Voice LS-1 linking straps are recommended), that attach from the two lower track pieces of the first cabinets to the two upper track pieces of the second cabinets. Up to four cabinets may be hung in succession in this fashion. The loudspeaker array grid assembly is then raised into postion by a hoist motor (or motors) of sufficient load rating. Note that the weight of such an array can be quite substantial, and the building structural supports to which the motors are attached must be capable of supporting such a load with a sufficient safety factor. In permanent installations the hoist motors are often eliminated with the grid assembly being secured directly to the building structure.

The Hardware

The MT-4 flying system utilizes the most high-tech aircraft hardware available for securing heavy loads. Mounted in each enclosure are four pieces of the Aeroquip #34030-3 "L-Track", a specially machined extrusion of 7075-T6 aluminum alloy material. The track pieces are secured to 6061-T6 aluminum alloy brackets that are an integral part of the MT-4 flying enclosure. The hardware system was designed for use with the Aeroquip #32102 and #32111 double-stud ring fittings. The GS-1 grid strap and LS-1 linking strap assemblies use the Aeroquip #32111 fittings. To attach the rigging straps to the cabinet, grasp the fitting between the thumb and first

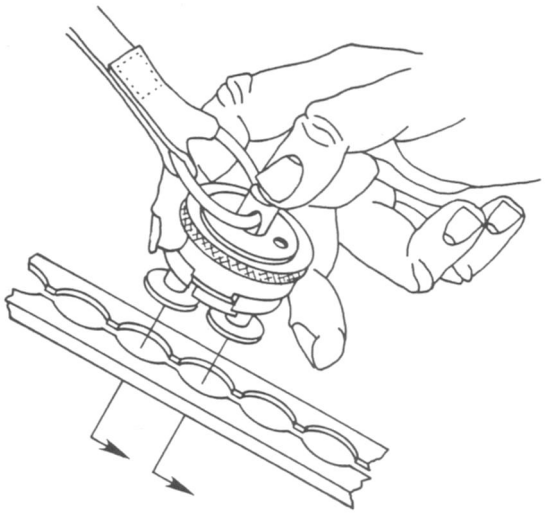


FIGURE 3 — Attaching the Fly-Points

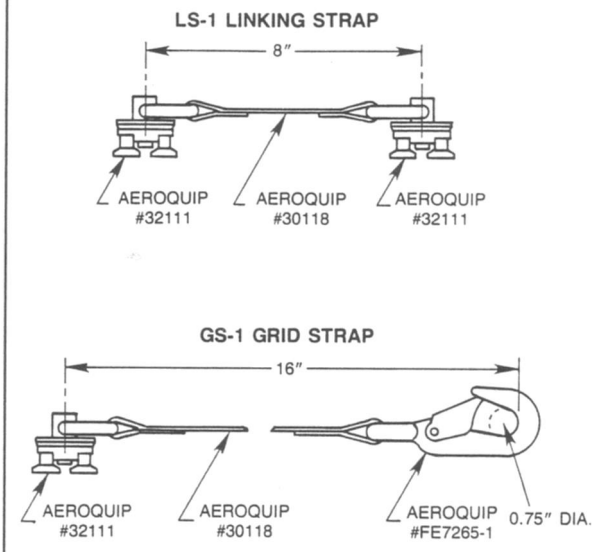


FIGURE 4 — The MT-4 Rigging Strap Assemblies

two fingers as shown in Figure 3, and press with the thumb until the two legs of the fitting are fully extended. Insert the two round feet of the legs into the round cutouts in the track and slide the fitting to the desired location, having the main body of the fitting centered over one of the cutouts with the feet located on either side. Release the fitting. The main body of the fitting should lock into the cutout and be immovable. Always check to make sure the fitting is securely locked in position in the track. To remove the fitting, reverse the procedure.

The GS-1 and the LS-1 strap assemblies (shown in Figure 4) have been specifically designed for optimal implementation of the MT-4 flying system. Both strap assemblies utilize the Aeroquip #32111 fittings (3,750-pound break-strength rating per fitting when used with the #34030-3 L-Track). An Aeroquip #FE7265-1 safety hook (5,000-pound break-strength rating) is used on the GS-1 grid strap for attachment to the grid. The safety hook is perfectly suited for attaching to 5/8-inch shackles, or may be secured directly to the grid through a 7/8-inch diameter hole in the grid bar stock material.

Both rigging straps utilize the Aeroquip #30118 nylon webbing (9,500-pound break-strength rating). Nylon webbing was chosen for the strap material because of its tremendous strength (greater than steel cable in this application) and because of its dynamic flexing capabilities (the force from any sudden jolt or shift in load is absorbed by the strap rather than transmitted to the speaker enclosure). Additionally, nylon is a flexible material that is easy to work with.

The user is cautioned that in certain permanent installation applications the nylon material may not meet local fire regulations. In such an instance, steel cable assemblies may have to be substituted. Safety straps or cables may also be reguired. This requirement is easily met by attaching additional fittings and straps from an unused open section of track at the top of a cabinet back to the grid.

Electro-Voice strongly urges that the user maintains a safety factor of at least 5:1 when implementing an MT-4 flying system. (OSHA requires a minimum of 5:1 for overhead lifting while BOCA requires a 3.75:1 minimum.) The safety factor is defined as the ratio of the break-strength (weight) rating of the system to the actual suspended weight. The weakest component of an MT-4 flying system determines the strength rating of the system. The MT-4 flying enclosures and the GS-1 and LS-1 rigging straps have been certified for strength by an independent test laboratory. The weakest link for all of the array configurations illustrated in this guide is the mechnical connection between the fitting on the rigging straps and the track on the cabinet, exhibiting a minimum break strength of 7,500 pounds per cabinet (or 3,750 pounds per attachment point). The user is reminded that the top cabinet in an array supports all of the cabinets underneath it. A column of four MTH-4's (375 pounds each) would result in a 1,500-pound load yielding a safety factor of 5.0:1. A column of four MTL-4's (271 pounds each) would maintain a safety factor of 6.9:1.

CONSTRUCTING ARRAYS

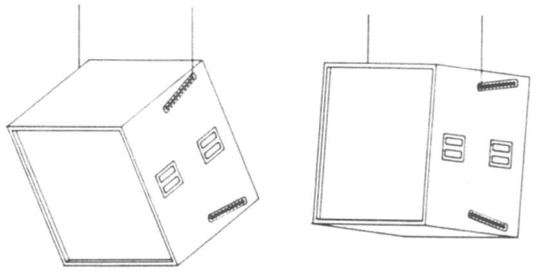
Balancing

The vertical angle of the flying MT-4 enclosure may be adjusted by choosing different positions of attachment along the track on the cabinet. There are a total of ten attachment points allowing for a wide variety of angles. Although the center of gravity is slightly different for the MTL-4 and the MTH-4, the balancing concept is the same. The further the attachment point is towards the back of the cabinet, the greater the angle downward. As the attachment point is moved forward the cabinet will have less angle, and at the furthest point forward the cabinet will point approximately straight ahead. This principle holds true when hanging the cabinet with a 60° horizontal pattern and a 40° vertical pattern, as shown in Figure 5a, as well as when the cabinet (and pattern) are rotated, as shown in Figure 5b.

Vertical arrays are constructed by hanging cabinets from one another in succession. Both the curvature of the array and the angles of the individual cabinets are controlled by the attachment point positions. The curve is determined by the position on the lower track of an already hanging cabinet from which the next cabinet is hung — the further back the attachment point is on the upper box, the further back the lower cabinet is shifted and, hence, the greater the curvature of the array. The goal is to have the back top and bottom edges of adjacent cabinets nearly toucing.

Hanging one cabinet from another, however, affects the angle of the first. This is best demonstrated in an example. In Figure 6a, one MT-4 enclosure is hung so that it points straight ahead and a second is added below. The addition of the second enclosure causes the

a. 60°H × 40°V Pattern



b. 40°H × 60°V Pattern

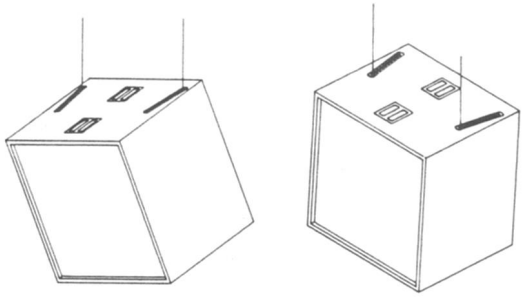


FIGURE 5 — Balancing the MT-4 Enclosures

a. Adding a Second Box Affects the First.

b. The Upper Box Readjusted.

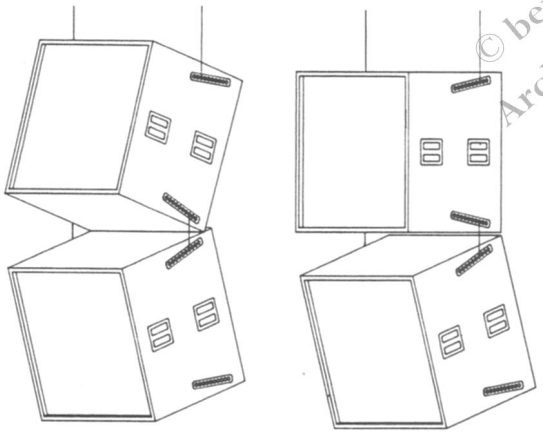


FIGURE 6 — Interaction Between Flown Cabinets

first to point upward. Shifting the upper attachment point of the first cabinet back, as shown in Figure 6b, counteracts the additional load and results in the upper cabinet pointing straight ahead. This change has no affect on the lower cabinet. By manipulating the MT-4 enclosure in such a fashion, a tremendous variety of arrays can be created to fulfill a wide range of applications. In the next section a number of typical array building blocks are presented as examples.

Array Bulding Blocks and Configurations

In this section a variety of array building blocks are presented that are useful for many commonly encountered sound-reinforcement situations. It is suggested that the system designer use these examples as a starting point from which modifications might be made to tailor the system to the exact requirements.

Full-Range Arrays. A very basic building block would be a full-range array made up of a single MTL-4 low-frequency module and an MTH-4 mid/high-frequency module. A full-range building block having a 60°H × 40°V pattern is shown in Figure 7. The position of attachment (the notch in the track counting from the back) is indicated in the illustration. The MTH-4 is hung below the MTL-4, allowing maximum flexibility of aiming the mid and high frequencies. The same cabinets utilized in a 40°H × 60°V configuration are shown in Figure 8. Again, the MTH-4 is on the bottom, but this time with the high-frequency horns down, allowing the closest possible spacing between the midbass and low-frequency sections. These full-range building blocks might be used as components of a distributed system or as elements of a clustered array. The 40°H × 60°V configuration is particularly useful in groups of three (as shown in Figure 9), surrounding the stage in theatre-in-the-round situations where the problem is one of wide, vertical coverage.

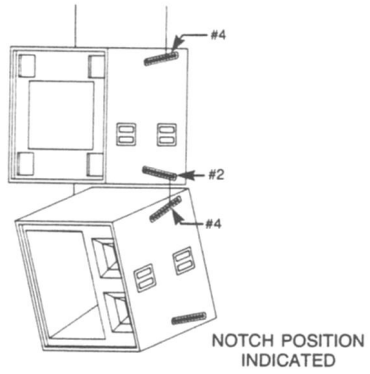


FIGURE 7 — MT-4 Full-Range Array Building Block (60°H × 40°V)

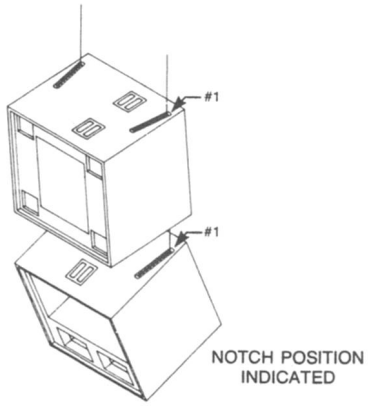


FIGURE 8 — MT-4 Full-Range Array Building Block (40°H × 60°V)

WARNING: The system designer/user is expressly cautioned to never hang more than *four* cabinets from one another in the 60°H × 40°V configuration as shown in Figure 7. Two MTL-4 enclosures and two MTH-4 enclosures hung together result in a safety factor of 5.8:1. The system designer/user is also cautioned to never hang more than *two* cabinets from one another in the 40°H × 60°V configuration as shown in Figure 8. One MTL-4 enclosure and one MTH-4 enclosure hung together result in a safety factor of 11.6:1. (When hanging in the 40°H × 60°V configuration, the MT-4 enclosures are stressed internally.

Although the enclosures are fully capable of supporting a greater load, internal air leaks may occur, affecting acoustical performance when attempting to hang more than two cabinets from one another in the 60°-vertical configuration.)

Vertical Line Arrays. In large, rectangular venues where the sound system is flown over the stage at one end of the room, MT-4 enclosures are arranged in vertical columns to achieve long throw. In this application, the MTL-4 and MTH-4 modules are best dealt with separately, as shown in Figure 10, hung three high. This configuration creates separate line arrays for the different frequency bands; low-frequency, midbass and the midrange and highs mixed together. This technique allows maximum vertical pattern control with minimum lobing, while still maintaining the 60° horizontal pattern. Note that the top two cabinets are aimed towards the back of the hall with the bottom cabinet angled down to cover the audience area nearer the array. For extremely high-power applications, the MT-4 enclosures may be hung four high, as shown in Figure 11.

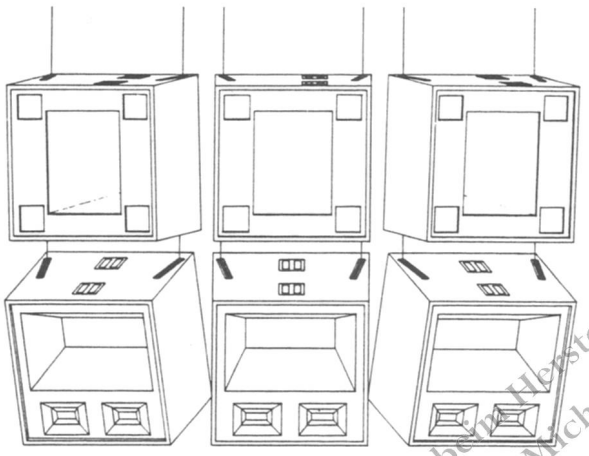
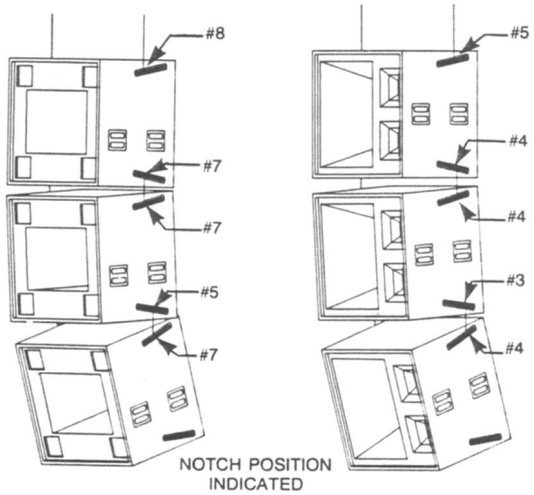
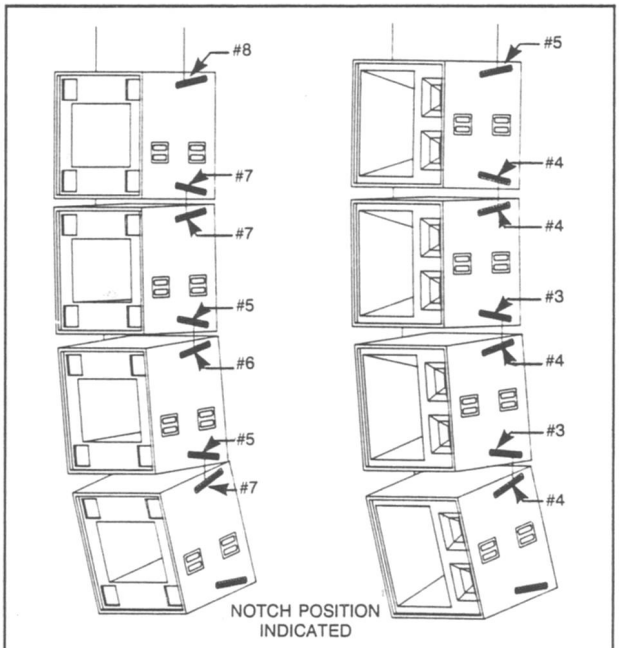


FIGURE 9 — MT-4 Loudspeaker Array Useful for Short-Throw Wide Vertical Coverage Applications such as Theatres-in-the-Round



NOTCH POSITION INDICATED

FIGURE 10 — High-Power Vertical Line Array Building Blocks (60°H)



NOTCH POSITION INDICATED

FIGURE 11 — Very High-Power Vertical Line Array Building Blocks (60°H)

A particularly effective way of combining the line arrays is to sandwich one column of MTL-4's between two splayed MTH-4 columns arranged in mirror image, as shown in Figure 12. Such an arrangement would be flown on either side of the stage. A ground stack would be added underneath each hang, consisting primarily of MTL-4's (on the floor for maximum low-frequency efficiency) with two MTH-4's to cover the audience near the stage. Flying approximately one-third of the bass is recommended to achieve uniform low-frequency coverage in the upper seating banks along the sides of a long rectangular venue. Note that the ground stack is positioned behind the flown array as a continuation of the arc of the array.

WARNING: The system designer/user is expressly cautioned to never hang more than *four* cabinets from one another in the vertical line array configuration as shown in Figure 11. Four MTL-4 enclosures hung together result in a safety factor of 6.9:1. Four MTH-4 enclosures hung together result in a safety factor of 5.0:1.

Grid Design for the MT-4 System

Electro-Voice does not manufacture grids for supporting MT-4 loudspeaker arrays. In the case of permanent installations, it is generally most effective and cost efficient to design a support system specific to the installation, taking into account the loudspeaker array(s) and the building structure. It may even be possible, in some circumstances, to eliminate the grid and secure the loudspeakers directly to the building structural supports. The sound system designer is instructed to evaluate each individual circumstance and design a support system tailored to the specific application.

In the case of touring concert sound, a few array formats, such as those shown in Figures 9 and 12, occur with great frequency. An "all-purpose" grid that would accommodate these formats and allow variations would be particularly useful. A grid that can accommodate three columns of four MT-4 enclosures is shown in Figure 13. The grid uses common $\frac{5}{16}$-inch thick structural steel barstock and requires only simple welding techniques.

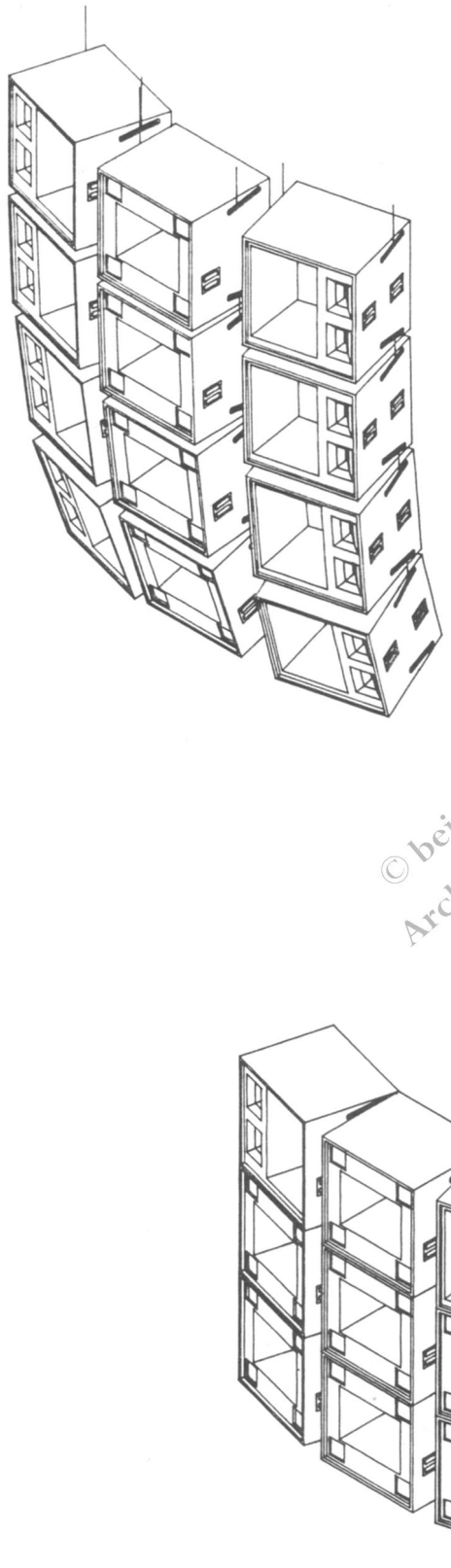


FIGURE 12 — Flown MT-4 Vertical Line Arrays with a Ground Stack for Very High Power Long-Throw Applications such as Rectangular-Shaped Arenas

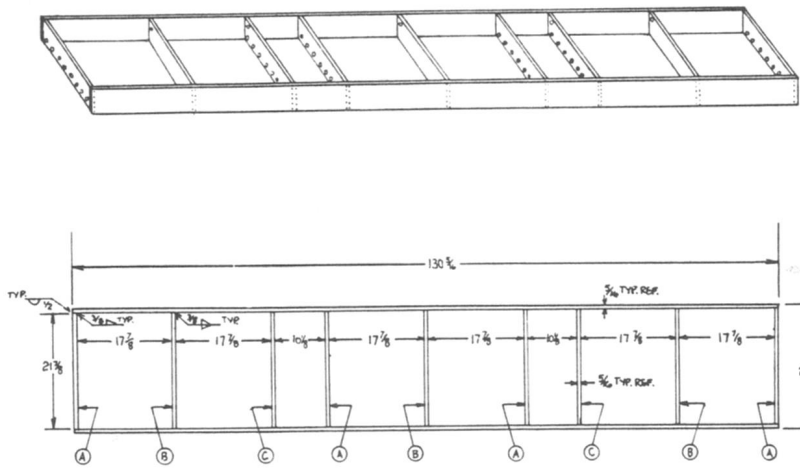
Suggested lifting configurations for various arrays are shown in Figure 14. These flying configurations utilize the full-strength capability of the suggested grid design, maintaining the maximum safety factor. The user is cautioned that other lifting configurations may lessen the factor of safety. Attachment to the grid may be made with 5/8-inch shackles or by attaching the hook from the GS-1 grid strap directly. The load should always be raised (or lowered) slowly and evenly. Any sudden jolts or dynamic changes (occurring from rapid changes in speed, shifting loads, etc.) can result in impact forces many times greater than the static dead-weight load.

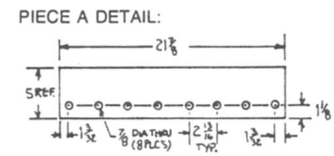
Electro-Voice offers this grid design only as a suggestion, and offers no guarantee of performance. If fabricated as detailed in Figure 13, and utilized as detailed in Figure 14, a safety factor in excess of 10:1 may theoretically be achieved for the grid for the worst case load of three columns of four MTH-4 enclosures employing six hoist-points. Variances in the quality of materials and workmanship can substantially affect the strength of the grid. The user is responsible for determining the strength of the constructed grid.

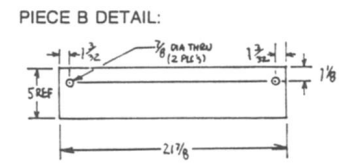
INSPECTION, MAINTENANCE AND PRECAUTIONS

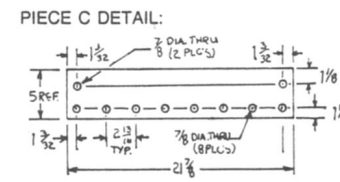
MT-4 System Hardware

MT-4 Loudspeaker Enclosures. Prior to each use inspect the enclosure for any cracks, deformations, missing or damaged components which could reduce enclosure strength. Inspect the track and bracket assemblies on the sides of the enclosure for any cracks, deformations, missing or loose screws which could reduce the flying hardware strength. Replace or repair damaged speaker systems. Never exceed the limitations or maximum recommended load specified by Electro-Voice for the MT-4 enclosures.









MATL: 5″ × 5/16″ THICK 1018 STRUCTURAL STEEL

WELDING NOTES:

1. ⅜″ FILLET BOTH SIDES EACH TEE JOINT
2. ⅜″ FILLET INSIDE OF CORNER JOINT AND ½″ FILLET OUTSIDE OF CORNER JOINT.

FIGURE 13 — Suggested MT-4 Grid

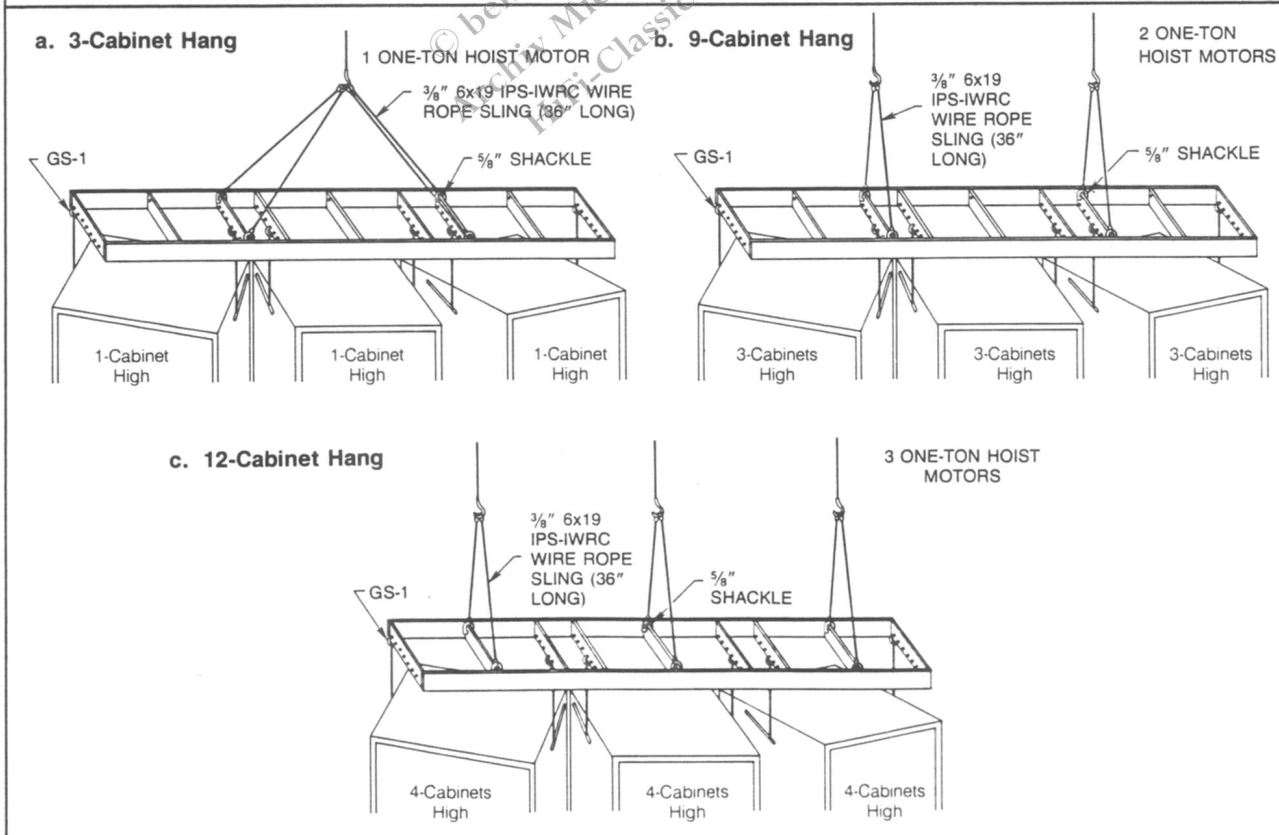


FIGURE 14 — Suggested Flying Configurations for MT-4 Systems

GS-1 and LS-1 Strap Assemblies. Prior to each use inspect the webbing for cuts, abrasion, tears, knots, chemical damage, burns and broken stitches which could reduce assembly strength. Inspect the fittings and hooks for any cracks, burrs, deformation, missing or damaged components which could reduce strap assembly strength. Replace any strap assembly with damaged webbing. Replace or repair any strap assembly with damaged hardware. Always double-check that each fitting on the rigging strap assemblies are securely locked into position in the track on the MT-4 enclosures before lifting.

Associated Hardware

Grid Assembly. Prior to each use inspect the grid assembly and associated hardware for any cracks, deformations, broken welds, corrosion, missing or damaged components which could reduce the grid assembly strength. Replace or repair damaged grid assemblies. Never exceed the limitations or maximum recommended load intended for grid assembly design.

Hoist Motors. Prior to each use inspect the hoist motor and associated hardware for any cracks, deformation, broken welds, corrosion, missing or damaged components which could reduce the hoist motor strength. Replace or repair damaged hoist motors and hardware. Never exceed the limitations or maximum recommended load specified by the hoist manufacturer. Always raise and lower the load slowly and evenly, avoiding any rapid changes in speed or shifting loads that could result in a sudden jolt to the suspended system.

Building Structural Supports. Prior to usage the strength and load-bearing capabilities of the building structural supports should be evaluated and certified by a professional engineer as being adequate for supporting the intended MT-4 system. Prior to each use inspect the building structural supports for any cracks, deformation, broken welds, corrosion, missing or damaged components which could reduce the structural strength. Damaged building structural supports should be replaced or repaired and re-certified.

Mechanical Connections. Prior to each use inspect all mechanical connections (chain, wire ropes, slings, shackles, hooks, fittings, etc.) for any cracks, deformation, broken welds, slipping crimps, fraying, abrasion, knots, corrosion, chemical damage, loose screws, missing or damaged components which would reduce the maximum strength specified by the connector manufacturer.

STRENGTH RATINGS AND SAFETY FACTORS

The strength ratings given by Electro-Voice are "minimum break-strength," and are based upon a straight tensile pull, as encountered in the typical arrays illustrated throughout this guide. Load directions other than straight may result in a significant reduction of strength. Strength ratings indicated in this catalog are contingent upon using combinations of Electro-Voice MT-4 enclosures and GS-1 and LS-1 rigging straps. The weakest component of an MT-4 flying system determines the strength rating of the system. Other products, no matter how similar in appearance, cannot be construed as acceptable substitutes. If substitutes are made, the user assumes the responsibility of determining the strength rating. Electro-Voice does not endorse, recommend or rate any of the auxiliary equipment (grids, hoist motors, mechanical hardware, etc.) necessary for completing an MT-4 flying system. It is the expressed responsibility of the system user to verify the strength ratings of all equipment not manufactured by Electro-Voice. Securement strength requirements should take into consideration any dynamic loading and all other contributing factors affecting the flown system. It is the responsibility of the user to determine the proper factor of safety in specific applications and the strength rating of connection points. Electro-Voice strongly recommends that the MT-4 flying system be used in accordance with all federal, state and local regulations, and strongly urges the user to review and comply with all federal, state and local regulations relative to proper securement of flying or hanging loads prior to usage.

The break strength rating of each MT-4 enclosure used with the GS-1 and LS-1 rigging straps is 7500 pounds (3750 pounds per fly-point). The MTL-4F and MTL-4PF weigh 271 pounds each. The MTH-4F and MTH-4PF weigh 375 pounds each.

WARRANTY (Limited)

Electro-Voice MT-4 Speakers and Speaker Systems (excluding active electronics) are guaranteed for five years from date of original purchase against malfunction due to defects in workmanship and materials. Electro-Voice MT-4 flying hardware (GS-1 and LS-1 rigging straps and enclosure-mounted flying hardware) is guaranteed for one year from date of original purchase against malfunction due to defects in workmanship and materials. Electro-Voice MT-4 speaker accessories (including RD-1 dolly) are guaranteed for one year from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, unit will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be returned prepaid. Warranty does not extend to finish, appearance items, burned coils, or malfunction due to abuse or operation under other than specified conditions, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee. A list of authorized warranty service agencies is available from Electro-Voice, Inc., 600 Cecil St., Buchanan, MI 49107 (AC/616-695-6831); Electro-Voice, Inc., 3810 148th Ave. N.E., Redmond, WA 98052 (AC/206-881-9555); and/or Electro-Voice West, 8234 Doe Ave., Visalia, CA 93291 (AC/209-651-7777). Or Electro-Voice Div., 345 Herbert St., Gananoque, Ontario, Canada K7G 2V1 (AC/613-382-2141); Electro-Voice, S.A., Keltenstrasse 5, CH-2563 IPSACH, Switzerland (41)32-51-68-33; Electro-Voice, Ltd., 2-5-60 Izumi, Suginami-ku, Tokyo, Japan 168, (81)3-325-7900; Electro-Voice Germany, Larchenstrasse 99, 6230 Frankfurt/Main 80, Germany (49)69-380-100; Electro-Voice Pty., Ltd., 59 Waratah St., Kirrawee N.S.W. 2232, Australia (61)2-521-5322. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or province to province.

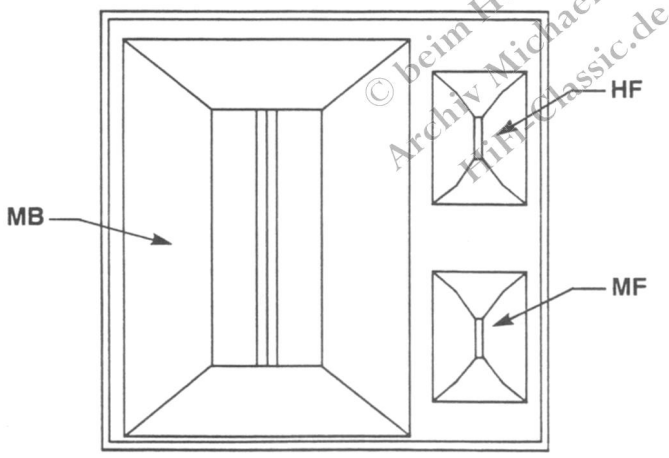
Service and repair address for this product:
Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107.

Specifications subject to change
without notice.

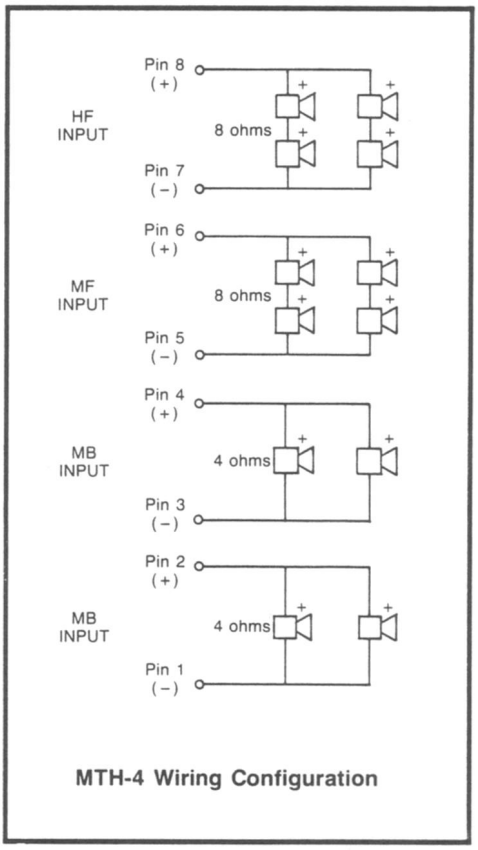
NEW MTH-4 WIRING CONFIGURATION

In response to numerous requests, the electrical connections of the MTH-4 midbass/midrange/high-frequency system have been changed from a pair of 4-pin ITT Cannon EP-4 connectors to a single 8-pin EP-8 connector. The MTL-4 retains the single EP-4 connector. This new configuration offers several advantages: a savings of both time and money, and the complete elimination of any wiring errors. The customer saves money because only one speaker cable has to be purchased for operation of the MTH-4, and the end user saves time in set up by having to run half as many speaker cables. With the MTL-4 and MTH-4 enclosures now using *different* connectors, it is impossible for the MT-4 system to be wired incorrectly.

Electrical connections are made on the back of the MTH-4 enclosure via one 8-pin connector. The midbass section has four 8-ohm loudspeakers wired in paralleled pairs resulting in two 4-ohm loads accessed by four pins of the connector. The midrange section has four 8-ohm drivers wired in a parallel-series arrangement resulting in one 8-ohm load accessed by two additional pins. The high-frequency section also has four drivers wired in parallel-series with a resulting 8-ohm load accessed by the two remaining pins of the connector. The connector used is the ITT Cannon EP-8-14 (male), and the pin-out arrangement and wiring diagram is shown in the figure. The mating connector for the cable end is the ITT Cannon EP-8-11-IC.



MTH-4 Cabinet Layout



MTH-4 Wiring Configuration

Cables, connectors and wiring accessories for the new MT-4 systems wiring configuration are immediately available from Pro-Co Sound, Inc., and Whirlwind Music Distributors, Inc. To find your local Pro-Co or Whirlwind dealer, contact:

Pro-Co Sound, Inc.
135 E. Kalamazoo Ave.
Kalamazoo, MI 49007

Whirlwind Music Distributors, Inc.
P.O. Box 1075
Rochester, NY 14603

Part Number 530785—716