

SlingShot

user manual




Mach

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INTRODUCTION

The Mach SlingShot Series has been developed for high performance touring and top-end installation applications. The MS1262, MS15X2 and MS118 cover new pioneering ground and incorporate several new materials and techniques, including a special horn flare design that is acoustically optimized to eliminate eddy currents and a new construction technique that minimizes mechanical resonance.

The SlingShot has a very high SPL-to-frontal-area/SPL-to-weight ratio and is capable of delivering HI-FI like clarity at maximum output.

MS1262

The MS1262 is an active three-way long throw unit with a 55° x 35° coverage pattern, operating from 190Hz to 21kHz. The 12" and 6" units are built from scratch to achieve maximum performance in the horn-loaded design. The 12" is a fast, clean, and very strong unit that works from 140 Hz to 2 kHz. The unit has a powerful motor with a 2 ½" voice coil with excellent cooling and very low power compression. The 6 ½" high/mid unit is exceptionally crisp and detailed. It features a 1 ¼" aluminum voice coil and has a very extended frequency response from 600 Hz to 6 kHz.

The HF unit is a 2" compression driver with a 3" titanium diaphragm. To achieve an extended frequency response, special Mylar suspension is incorporated into the unit. The solid power handling and very low power compression is achieved by incorporating a specially developed flat aluminum voice coil. Apart from virtually linear performance from 3 to 18 kHz, the driver has a remarkably clean, neutral, and open sound.

All drive units in the MS1262 operate more than an octave beyond the frequency range in which they are engaged. The audible result of this extreme approach is a speaker with remarkable headroom and ideal phase throughout the frequency range. The nature of the speaker remains unchanged regardless of the output and it maintains detail and clarity even at maximum SPL.

MS15X2

The MS15X2 is a horn-loaded double 15" mid-bass unit with a horizontal beam width of 90° - 120° and a vertical beam width of 50° - 90°. It delivers extreme output and clarity with a uniform on-and-off-axis response that provides ideal support for the MS1262 and MS118 in outdoor or large indoor live applications where more energy is needed in the critical mid-bass area. The engine consists of two specially developed 15" low-mid devices with a shaped cone, low hysteresis in all moving parts, and a double cooling system. They are lightly loaded by a

newly developed WaveShaper™, which transforms the circular wave into a square wave while minimizing distortion and eddy currents. The MS15X2 cabinet is similar to the MS1262 cabinet, allowing both units to be flown in the same cluster.

MS118

The MS118 is built around an extremely powerful and efficient woofer designed specifically to provide powerful and accurate bass frequencies with minimal distortion. The 5" voice-coil assembly has probably the largest magnet ever employed in an 18" transducer and the outstanding performance confirms the theory that there is no substitute for motor power on low-frequency transducers of this class. Extensive research has resulted in the composite alloy-and-steel pole piece that provides stable and uniform magnetic field and improved linear excursion. A sophisticated double suspension maintains pure axial movement, ensuring that the voice-coil is correctly centered at all times. The motor assembly generates a high BL product that contributes to the speed, accuracy and high fidelity reproduction, even under the most demanding operating conditions.

A 38 mm thick driver chassis mounting board is employed to secure tight and precise bass response. Acoustic absorption foam is used in the rear compartment to eliminate standing waves and off-axis sound leakage. The 18 mm cabinet features front and rear flying tracks similar to those on the MS1262 top-box.

The MS118 is designed as a symmetrically loaded half horn. When paired with a second MS118, it should be stacked as shown to right to form a double-sided horn with extended sub-frequency output and improved throw.



CABINET FEATURES

The SlingShot cabinets are constructed of 13 ply, 18 mm plywood and finished with a highly scratch and weather resistant polyurethane coating. The MS118 bass cabinet features integrated rubber feet for safe stacking and convenient guide lines for easy stacking.

ACCESSORIES

Transportation dollies (P/N 93941002) are available for the top-boxes. The dollies are easily locked into the front grille and protect the speakers during transport.

Wheels with and without brakes are available for the subs (P/N 19400060 without brake, P/N 19400070 with brake).

INSTALLATION

CONNECTIONS

All SlingShot models feature an 8-pole Speakon® plug. The drivers in the MS1262 and MS118 are connected as follows:

Driver	Pins
18"	1+, 1-
12"	2+, 2-
6 ½"	3+, 3-
2"	4+, 4-

The 1+, 1- pins are linked on all terminals to enable linking between subs and top-boxes.

Always use high quality speaker cable. Cables with high capacitance, high inductance and high impedance have a negative influence on sound quality as well as amplifier performance and reliability. We recommend the special 8-pole Mach speaker cable, which is a professional 4 mm² rubber cable with low capacitance, inductance, and impedance.

Very long cables heavily influence sound quality and amplifier stability.

FLYING THE SPEAKERS

The SlingShot flying system is fast, flexible and safe. There are four flying tracks on the SlingShot cabinets: two in front, and two in back at the center that are connected by an internal steel bracket. All flying tracks use “Double Stud and Ring” locking fittings (P/N 93944000), which have a certified load of 2400 kilograms per fitting when mounted in the SlingShot flying track.

The flying system allows the boxes to be flown in a straight line or in a “banana” shape, whichever best suits the desired coverage pattern. For 2-wide flying, the ideal angle between top boxes is 20°. For 3-wide configurations, fly the top boxes at an angle of 45°.

The tilt of each individual box is adjustable in 1° increments.

The Slingshot is compatible with ATM flying bars. For clusters of up to 12 boxes (4 wide by 3 deep), use the ATM MLDS system. For arrays of 9 to 24 boxes, use the ATM MEGS 575 flying system.

Custom 2-wide and 3-wide fixed flying bars and a comprehensive flying manual are under development; please inquiry about availability.

OPERATION

PROCESSORS/CONTROLLERS

The SlingShot operates with any four-way processor or controller. A software file is available for the XTA DP266 and BSS Omnidrive, Omnidrive Compact and Omnidrive Compact Plus. The file can be downloaded from the service and support area of the Mach web site at <http://www.mach.dk>. For other processors or controllers, please refer to the settings in the specifications.

The SlingShot combination MS1262 / MS118 or M182T may be operated with the Mach MS3 three-way analog controller. For three-way operation with the MS3, the MS1262 must be rewired for passive mode operation. See “Wiring” on page 8. Power handling in three-way (passive) mode for the 6” and the 2” in combination is 275 watts and the load is 8 ohms.

BREAK-IN PERIOD

The SlingShot drive units are hand-made of exceptionally strong and durable materials that must be broken in for a short period before they perform fully to specification. Each drive unit requires approximately 10 hours of use, and subs require approximately 30 hours, to break in.

No precautions or special procedures are necessary during the break-in period.

SERVICE

REQUIRED TOOLS

For	Tool
Access door	Torx 30
Drive units	4 mm Allen
Grille, horn flare, 12" cup, cable terminal	#2 Phillips
6 1/2" phase plug	Fixed key #17
12" phase plug	Fixed key #19

MS15X2 SERVICE

MS15X2 CONE KIT

15" cone kit. P/N 50304006

MS15X2 CABLE COLOR CODES

red 2 +
black 2 -

MS15X2 CROSSOVER SETTINGS

Recommended crossover points 90-350Hz / 24 dB LR
Power handling 1000 watt RMS in 4 ohm
Delay 1.9 ms

To access MS15X2 drive units

- 1 Unscrew the grille. Unscrew the horn flare screws on the cabinet sides.
- 2 Unscrew the access door.
- 3 Unscrew the internal horn flare module brackets.
- 4 Remove the cables from the Speakon terminal and take out the horn flare module.

MS1262 SERVICE

WIRING

Mode	Signal	Wire	Terminal
Active and passive	Crossover input	Red	Speakon 3+
		Black	Speakon 3-
		Orange	Speakon 4+
		Blue	Speakon 4-
	12" +	Red	Speakon 2+
	12" -	Black	Speakon 2-
Active	High input	-	Speakon 4+/4-
	Upper-mid input	-	Speakon 3+/3-
	Lower-mid input	-	Speakon 2+/2-
	2" +	Orange	HIGH A2
	2" -	Blue	HIGH A1
	6½" +	Brown	LOW A
	6½" -	White	LOW -
Jumper wire between HA and HA			
Passive	High & upper-mid input	-	Speakon 3+/3-
	Lower-mid input	-	Speakon 2+/2-
	2" +	Orange	HIGH P2
	2" -	Blue	HIGH P1
	6½" +	Brown	LOW P
	6½" -	White	LOW -
Jumper wire between HP and HP			

To access the MS1262 2” and 6 ½” drive units

- 1 Unscrew the rear access door.
- 2 Unscrew the drive unit and lift directly out of the box.

To access the MS1262 12” drive unit

- 1 Unscrew the rear access door.
- 2 Unscrew the cup for the 12”.
- 3 Disconnect the cables from the 12” unit. Pull the cables out through the cup. Move the cup to the upper part of the cabinet to ease access to the 12”.
- 4 Unscrew the 12” drive unit. Unscrew the phase plug.

To mount the MS1262 12” drive unit

- 1 Mount the phase plug into the 12”. Make sure that the phase plug is placed horizontally in the horn flare.
- 2 Mount the 12” into the baffle board.
- 3 Pull the cables through the plastic cup. Mount the cables on the terminal.
- 4 Mount the cup on the 12” drive unit.

To remove the MS1262 horn flare module

If all drive units needs to be serviced, it is easiest to remove the horn flare module.

- 1 Unscrew the grille.
- 2 Unscrew the horn flare screws on the cabinet sides.
- 3 Unscrew the access door.
- 4 Unscrew the four internal horn flare module brackets. Remove the horn flare module.

MS1262 CONE KITS

12” cone kit.	P/N 50304010
6 ½” drive unit	P/N 05862002
2” cone kit.	P/N 50304057

MS118 service

MS18 CONE KIT

18" cone kit P/N 50304011

MS18 CABLE COLOR CODES

red 1 +
black 1 -

To access MS118 drive units

- 1 Unscrew the access door.
- 2 Remove the cables from the Speakon terminal.
- 3 Unscrew the drive unit.

TECHNICAL DATA

	MS1262	MS15X2	MS118
Power rating, AES/Program	12": 350/700W 6½": 125/250W 2": 140/280W	800/2000 W	600/1700W
Frequency response (+/- 3dB)	12": 160-2kHz 6½": 600-8kHz 2": 800-18kHz	90-650Hz	59-220Hz 52-220Hz (2 pcs.)
Recommended crossover points	12": 190-1.3kHz 6½": 1.3-3.6kHz 2": 3.6kHz-infinity	90-350Hz	39-190Hz
Delay settings (measured when ground stacking)	2.28ms	1.9ms	none
Maximum SPL	137dB	135dB	132dB 135dB (2 pcs.)
Sensitivity (W/m)	12": 106dB 6½": 106dB 2": 108dB	105dB	103dB
Nominal impedance	12": 8 ohm 6½": 8 ohm 2": 16 ohm	4 ohm	8 ohm
Dispersion/beamwidth	55x35°	90-120° Horz. 60-90° Vert.	-
Q/DI	26/14dB	26/14dB	-
Dimensions (HxWxD)	82x59x72.5 cm (32x23x28.5 in.)	82x59x72.5 cm (32x23x28.5 in.)	76.5x59x72.5 cm (26.5x23x28.5 in.)
Weight	68 kg (150 lbs.)	70 kg (154 lbs.)	65 kg (143 lbs.)

