



Adamson Systems Engineering

M₁₅
user manual

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WARNING

It is compulsory to read this user manual before operating M15's . Supervision and competency are the responsibility of the system owners and operators. Owners and operators are responsible for inspecting the rigging and ensuring that it has not been damaged in transport, from misuse, or wear and tear. M15 loudspeakers are easily capable of generating high sound pressure levels that can cause permanent hearing damage and should be operated by personnel with experience in professional audio.

Section 1.0 Introduction

This manual is intended to demonstrate and help M15 owners with the operation of the M15 and its optional MASS™ (Multi Angle Suspension System) rigging system.



The Essential Multi-Purpose Box

The M15 is a multi-purpose high output enclosure, that can be used as a stage monitor, FOH system, center enclosure, or as a fill device.

The M15's symmetrical cabinet design facilitates mirror imaging when used as a stage monitor by maintaining the same projection angle. The indiscreet simplified Adamson logo indicates the low LF driver end. When placed side to side with the logos facing the low frequencies will couple. When placed on the opposite side, the horns will couple

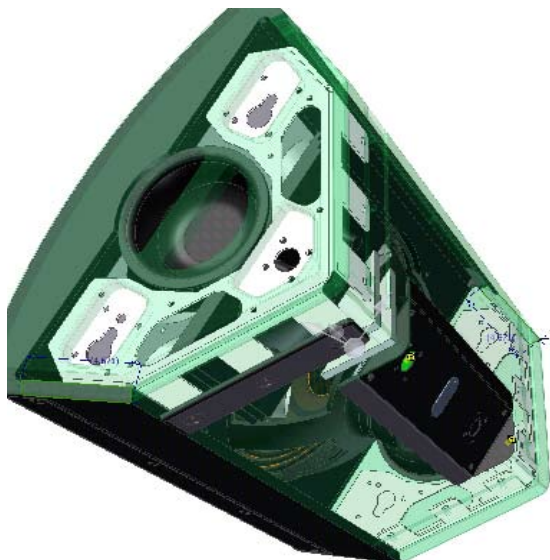
The M15 employs a switch which allows bi-amped or passive operation. It uses internal crossover circuitry when in passive mode, which is automatically by-passed when in active mode.

The cabinet is loaded with a single ND-15L, a 15 inch LF driver which incorporates a lightweight long excursion neodymium magnet, enhancing output, delivering superior powerhandling and providing consistently stable low end frequency response. The ND-15's basket utilizes an enlarged heat sync and thermal fins which draw heat away from the coil, lowering its operating temperature and improving thermal compression.

Constructed from Baltic birch, it is designed to accept a multi-purpose rigging plate that allows several different methods of flying the cabinet (see Rigging section).

The ND-15 is the only driver with zero-axial modes in it's entire passband. (60-800 hz) This substantially increases the linearized mid-band response.

Compared to traditional paper cones, the multilayer Kevlar cone along with advanced cone architecture, offers superior performance, zero fatigue and eliminates cone modes in the passband.



Section 3.0

Active/Passive Operation

In full range mode with presets the frequency response of the M15 is 60hz-18khz with a + -3db variation factor. The crossover point between low and high frequency components is 800hz. . Always use presets when operating the M-15, whether in active or passive mode.

Adamson recommends powering the M15 with a Lab.gruppen fP3400 stereo amplifier producing 1100w per channel @8ohms, and providing AC, VHF, thermal, DC and clip limiting protection.

In passive mode, up to two cabinets can be linked on one channel. In passive mode all signals are routed to one channel of the fP3400.

To select active mode, switch the protected toggles on the rear of the cabinet.

With the bi-amped setting, you enable up to two cabinets to be powered by two channels of a single fP3400. In a 2-way active configuration the LF and HF signals are routed separately to the amplifier channels. It can also be paralleled to other M15's through four NL-4 Speakon connectors. Using one of the four connectors for the speaker input allows a second connector to function as a feed to jump additional cabinets.

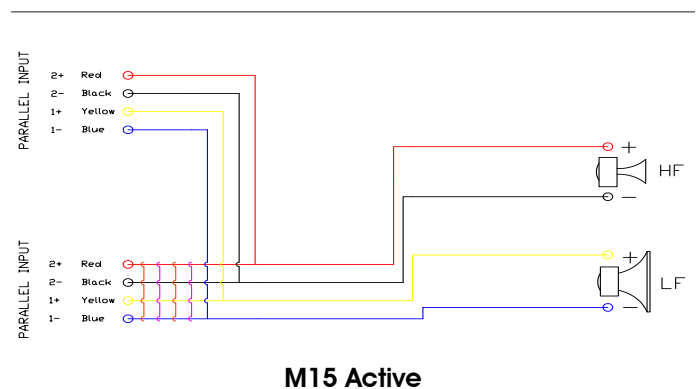
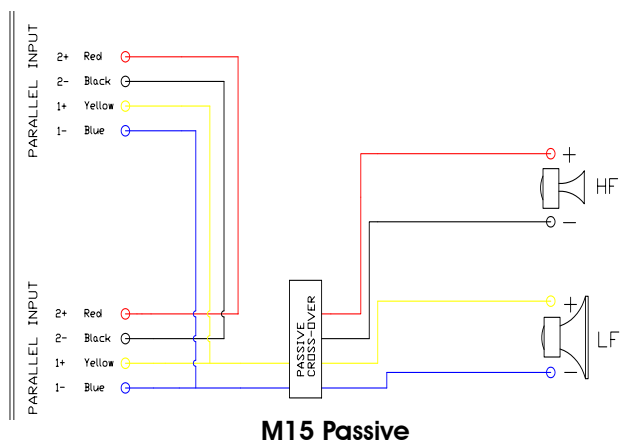
1. Remove the backplate to access the dipswitches. Choose active or passive mode and replace the cover with the indicator facing the appropriate direction.



In passive mode , Pins 1 +/1- of all four NL4 connectors feeds the full range signal to the High and Low frequency drivers, through their own passive crossover units.

1. **exposed dipswitches-Ensure that both switches are set to either active or passive mode at any one time.**

In active mode the Lab.gruppen fP3400 powers up to two cabinets. Pins 1 +/1- of the four connectors carry the LF signal and pins 2 +/2- of the four connectors carry the HF signal. The pin configuration is automatically changed when Bi-amped active mode is selected.



Section 4.0 Processing and presets

Adamson recommends processing signals with the Adamson M Series digital processor, but factory presets are available for approved digital signal processors, and are available through either the official Adamson website (link below) or by request.

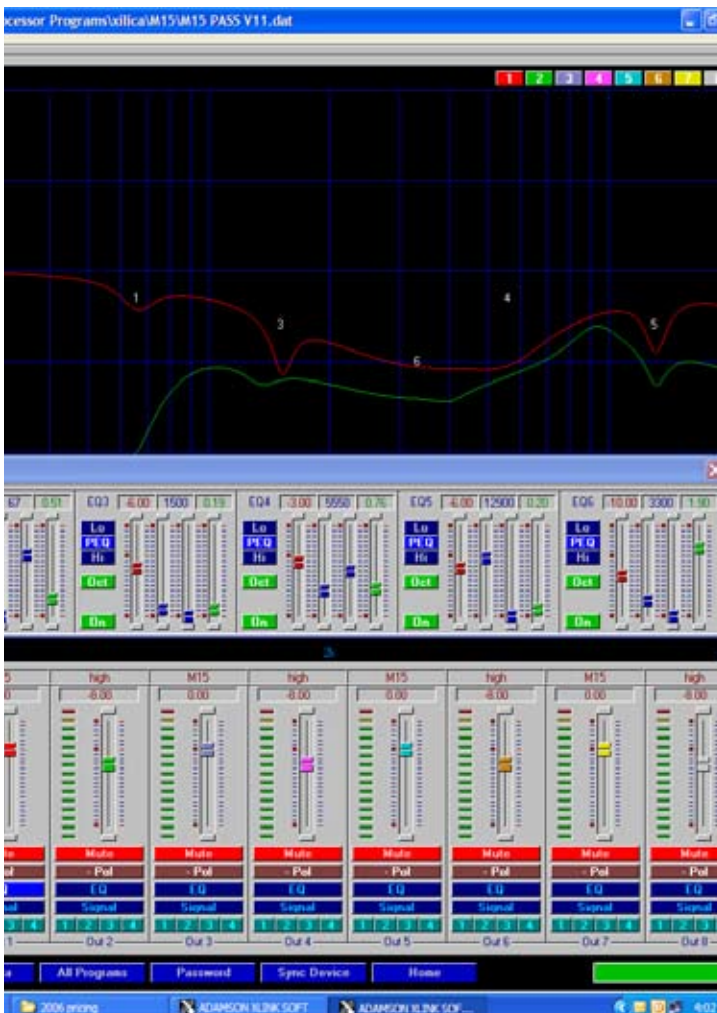
www.adamsonproaudio.com technical_support/presets/index.htm

M-series Processor Presets are determined through polar measurements and spacial averages to optimize equalization, crossover points and time alignment.

M15 Preset libraries for XTA's processors can be obtained from the Adamson website, by request from your local Adamson distributor or the Adamson Head office, and are applied using audio-core software.

Adamson's X-Link software controls the M-Series Digital Processor.

Below is a reference chart of XTA DP224 V.11 presets. For up to date presets check the above website link.



Unit ID 1 Device 1 [DP224] Active
Format: DP224 2 Way Crossover

[A] Input A		Gain: +0.0dB						Delay: 0.00 ms	
	PEQ 1	PEQ 2	PEQ 3	PEQ 4	PEQ 5	PEQ 6	PEQ 7	PEQ 8	
Freq	138.7Hz	655Hz	138Hz	250Hz	500Hz	1850Hz	2800Hz	4800Hz	
Q	7.1	4.2	4.2	3.0	3.0	3.0	3.0	3.0	
Gain	+0.0dB	-3.0dB	+0.0dB	+0.0dB	+0.0dB	+0.0dB	+0.0dB	+0.0dB	

[B] Input B		Gain: +0.0dB						Delay: 0.00 ms	
	PEQ 1	PEQ 2	PEQ 3	PEQ 4	PEQ 5	PEQ 6	PEQ 7	PEQ 8	
Freq	179.9Hz	650Hz	150Hz	297Hz	500Hz	1800Hz	2800Hz	4800Hz	
Q	7.1	4.2	4.2	2.8	3.0	3.0	3.0	3.0	
Gain	+0.0dB	-3.0dB	+0.0dB	+0.0dB	+0.0dB	+0.0dB	+0.0dB	+0.0dB	

[1] M15		Gain: +0.0dB					Delay: 0.000 ms	
Highpass: 50.0Hz 24dB Butterworth		Lowpass: 2000Hz 12dB Butterworth					Limiter: A2k 0.0ms Rel. x3 @ +1dB	
	PEQ 1	PEQ 2	PEQ 3	PEQ 4	PEQ 5			
Freq	67.0Hz	1850Hz	8850Hz	1200Hz	3800Hz			
Q	2.8	7.6	1.9	7.1	0.71			
Gain	+4.0dB	-5.0dB	-3.0dB	-3.0dB	-10.0dB			

[2] NC		Gain: -6.0dB					Delay: 0.000 ms	
Highpass: 800Hz 24dB Link-Riley		Lowpass: 2200Hz 24dB Link-Riley					Limiter: A2k 2.0ms Rel. x3 @ +1dB	
	PEQ 1	PEQ 2	PEQ 3	PEQ 4	PEQ 5			
Freq	38.17Hz	98.10Hz	9830Hz	1200Hz	3800Hz			
Q	0.71	2.8	4.2	7.1	4.2			
Gain	-6.0dB	+4.0dB	-2.0dB	-4.0dB	-1.0dB			

[3] M15		Gain: +0.0dB					Delay: 0.000 ms	
Highpass: 60.0Hz 24dB Butterworth		Lowpass: 2000Hz 12dB Butterworth					Limiter: A2k 0.0ms Rel. x3 @ +1dB	
	PEQ 1	PEQ 2	PEQ 3	PEQ 4	PEQ 5			
Freq	67.0Hz	1850Hz	8850Hz	1200Hz	3800Hz			
Q	2.8	7.6	1.9	7.1	0.71			
Gain	+4.0dB	-6.0dB	-3.0dB	-3.0dB	-10.0dB			

[4] NC		Gain: -6.0dB					Delay: 0.000 ms	
Highpass: 800Hz 24dB Link-Riley		Lowpass: 2200Hz 24dB Link-Riley					Limiter: A2k 2.0ms Rel. x3 @ +1dB	
	PEQ 1	PEQ 2	PEQ 3	PEQ 4	PEQ 5			
Freq	38.17Hz	98.10Hz	1833Hz	1200Hz	3800Hz			
Q	0.71	2.8	4.2	7.1	4.2			
Gain	-6.0dB	+4.0dB	-2.0dB	-4.0dB	-1.0dB			

Section 5.0 Technical Specifications

PRODUCT DATA

Dimensions & Weight	
Height (cm)	18.375" (46.7)
Width (cm)	28.5" (72.4)
Depth (cm)	12.125" (25.4)
Weight (kg)	56 lbs. (25.4kg)
Shape	Symmetrical trapezoid
Finish	Black Acrylic Bake Finish
Rigging	MASS™ System
Protective Grill	14 gauge cold rolled steel
Cabinet Construction	5/8" Baltic birch
Horn Configuration	Fiberglass Acoustic Waveguide
System Type	Active/Passive
Connection	Neutrik Speakon™ NL4

TECHNICAL DATA

Frequency Response +/- 3dB	60 Hz - 18kHz
Maximum SPL (continuous)	
Passive with Monitor preset	129.5 dB
Active with Monitor preset	131.5 dB
Active with FOH preset	131.3 dB
Directivity H x V	50° x 50°
System Type	Active / Passive
Full Range Sensitivity (2.83V @ 1m)	109.4 dB / 60Hz - 18kHz
LF Section	ND-15 15" Kevlar Neodymium
Power Handling AES (50Hz-800Hz)	500W (2000 peak)
Nominal Impedance	6 Ohms
Sensitivity (2.83 @ 1m)	102.7dB / 60Hz - 800Hz

Section 6.0

Rigging with the MASS™ System



The M15 optional accessories include the MASS™ (Multi Angle Suspension System) which features several different methods of flying the cabinet.

The M15 is designed to accept a multi-purpose rigging plate, which is the base for the following rigging methods covered in the manual.

MASS™ is designed for a single or a pair of M15's.

MASS™ is perfect for installation or touring applications and is available upon request.

MASS™
rigging
configurations

Section 6.1

Rigging with the MASS™ System

WARNING

When mounting the M15 with MASS™, ensure the boxes are securely fastened and mounted properly. Suspended speakers should always be reinforced with steel safety cable and inspected by an experienced crew member. When pole mounted, verify the stand is placed on a level surface, the tripod legs are fully extended and do not present a trip hazard. In adverse outdoor conditions it may be necessary to support the base of the stand with additional weight.

It is good practice to regularly inspect any cabinets housings for signs of wear, and load bearing bolts in mounting devices. MASS™ is intended for use with the M15 only.

Section 6.2

Rigging with the MASS™ System

1.



2.



For placing the Multi-Purpose plate in place for all MASS™ rigging methods

3.

1. Take the multi-purpose plate
2. Align with the top of the box and fit the locking hub into place
3. Pull the retaining pin up and slide it in.



Section 6.3

Rigging with the MASS™ System

Option 1:

Pole Mount - Rigging

Parts needed:

- (1) Multi-Purpose plate
- (1) Polemounting attachment

(Part not included. Can be ordered from Koenig & Meyer part number - 195/8 Mounting Adapter)



Section 6.3

Rigging with the MASS™ System



1. Screw the polemounting piece horizontally to the multipurpose plate. (1/4" 20 machine screw, 1/2" long).
2. Fasten the plate to the M15 as on page 11.

3. In the event that you have the "flytrack" installed onto the multipurpose plate and do not want to uninstall it, you can screw the pole mounting piece vertically. This will cover a part of the protractor, and therefore we suggest using a horizontal pole mount placement whenever possible.

Note- In this position the cabinet is not gravity centered, therefore ensure the tripod legs are fully extended and reinforced as required.



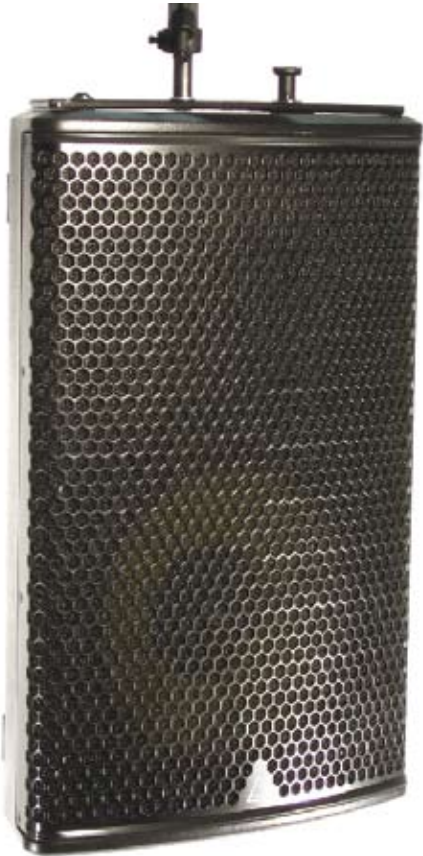
Section 6.4

Rigging with the MASS™ System

Option 2:
C-Clamp - Rigging

Parts needed:

- (1) Multi-purpose plate
- (1) C-clamp



Section 6.4

Rigging with the MASS™ System



1. Screw the C-Clamp into the Multi-purpose rigging plate.
2. Fasten securely with a nut
3. Slide the Multi-Purpose plate to place as on page 11.
4. Be sure the bolt head's height is not greater than the 1/4" countersink allows, to avoid cosmetic damage to the box.

Section 6.5

Rigging with the MASS™ System



Option 3: Fly-Track Rigging

Parts Needed:

- (1) Multi-pupose plate
- (2) Flytrack rigging pieces
- (2) Suspension Hardware (not included)



Section 6.5

Rigging with the MASS™ System



1. Secure the MASS™ flytracks into position with provided machine screws.(3/8 16th)
2. Attach the rigging plate as on page 11.
3. Attach suspension hardware if a more pronounced angle is required.



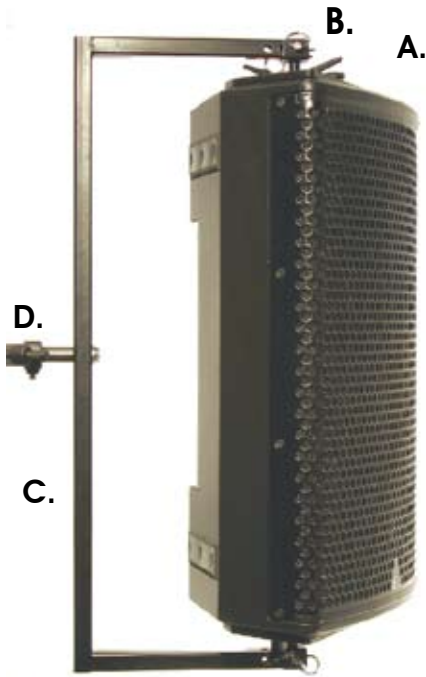
Flytrack option is adjustable to 5 different placements for varied degreed angles.
-9, -5.5, 0, +5.5, +9 degrees



Section 6.6

Rigging with the MASS™ System

Single Axis

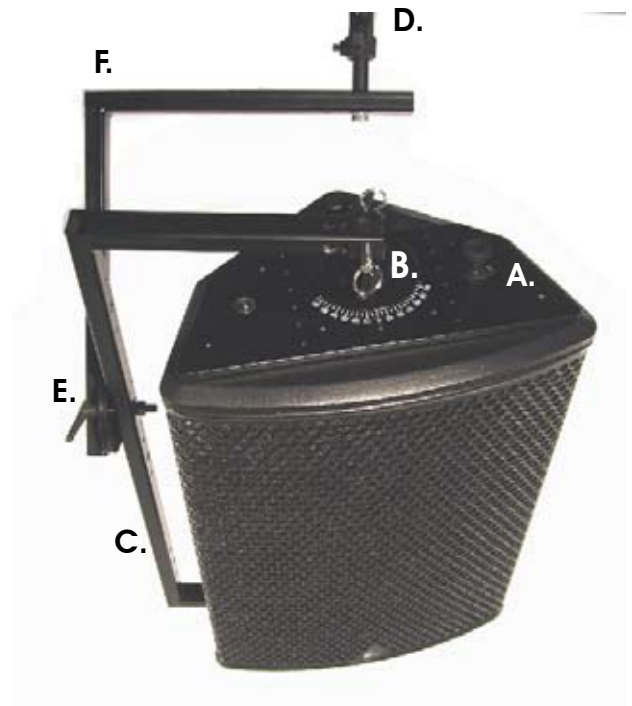


Option 4: Single Axis Rigging

Parts needed:

- (2) Multi Purpose Plates (A.)
- (2) Protractor Discs (B.)
- (1) U-bar (C.)
- (1) C-Clamp (D)

Dual Axis



Option 5: Dual Axis Rigging



- (2) Multi Purpose Plates (A.)
- (2) Protractor Discs (B.)
- (1) Swing Assembly (E.)
- (1) L-bar (F)
- (1) C-Clamp (D)

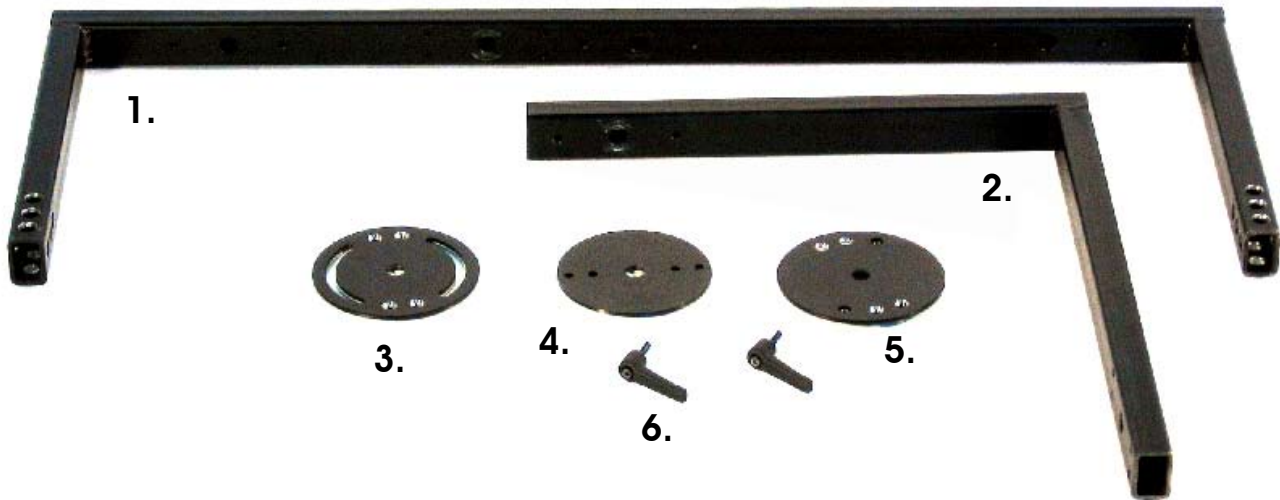
The M-15 is an Arrayable Cabinet capable of suspension applications in pairs.



Section 6.6

Rigging with the MASS™ System

Detailed parts list



- 1. U-bar
- 2. L-bar
- 3. U-Disc
- 4. Spacer Disc
- 5. L-Disc
- 6. Lever Screws
- 7. Multi Purpose plate
- 8. Protractor Disc

Note that parts 4-6 (top photo) as well as parts 6 & 8 (bottom photo) come already assembled.

(Additional tools you will need is a Phillips Head Screwdriver)

Single Axis



1.

1. Attach the Protractor Disc to the Multi Purpose Plate with attached lever pins. (x2) Attach the Multi Purpose Plates to the M15 as on p.11



2.

2-4. Slide the U-bar into the Protractor Disc, and insert the quick release push-pins on both sides.



3.

5. (Attach C-Clamp to the U-bar. If rigging as Dual Axis continue through steps 7-12.)



4.

7. Screw the U-Disc on to the U-bar.

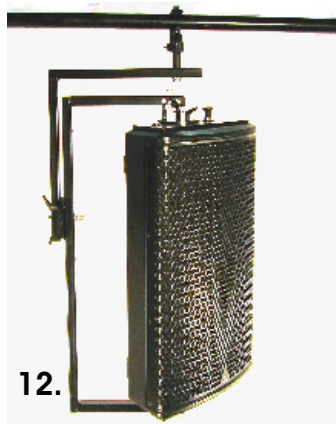


5.

8. (Place the Spacer Disc on top of the U-Disc, the Spacer Disc is usually permanently attached to the L-Disc.)

9-11. Place the L-Disc on the U-Disc, insert the Machine Bolt and fasten it from underneath. Then attach the lever screws on the top side.

12. Attach C-Clamp to the U-bar and Inspect attachments to be certain they are secure.



12.

Dual Axis



6.



7.



8.



9.



10.



11.

Section 6.6

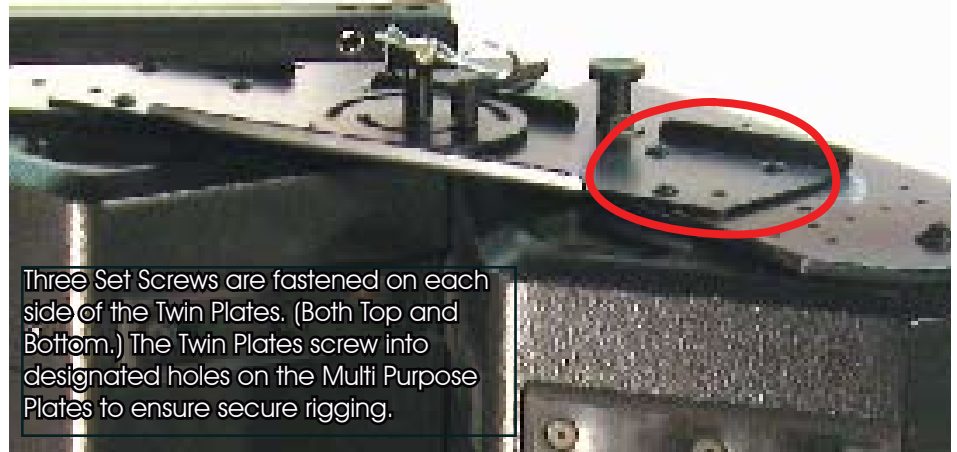
Rigging with the MASS™ System

Dual Axis Rigging of a pair of M15's

Additional parts

- (2) Twin Plates (Top A.) (Bottom B.)
- (12) Set Screws (6 x top, 6 x bottom)

1. The Top and Bottom Twin Plates (A and B) are installed on top of the multipurpose plates at respective ends of the cabinets with six set screws per side.
2. The Dual Protractor Disc (C) is attached to the Twin Plate in exactly the same way as to the Multi Purpose Plate, but part (C) is only used for dual cabinet rigging. Plate (B) with the fastening toggles attached is installed on the bottom of the array (when in an upright position.) Plate (A) is attached to the top of the array.
3. In the picture (left) part C. Is already attached to the bottom Twin plate B.



3. Slide the U-bar into the Protractor Discs on both sides and fasten with the attached Lever Screws.
4. Inspect attachments to be certain they are secure.

Section 7.0

Accessories: Custom Flight Case

The M-15 comes with an optional heavy duty flight case.

The cases are constructed from PVC laminated plywood and include zinc plated recessed catches and handles. All cabinets are fastened by aluminum extrusions, and sit on six swivel castors, two of which have brakes to prevent the case from moving.

The M-15's flight case is designed to hold two enclosures , which are loaded and unloaded horizontally. The case interior is lined with protective heavy-duty foam.

The NL4 connectors are exposed through an access port on top of the flight case, so when it is open, the M-15's can easily be tested without having to remove them from the case.





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