

# MTX JACKHAMMER



## OWNER'S MANUAL

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## INTRODUCTION

Thank you for choosing MTX to help you reach your ultimate goal with your vehicle. The MTX JackHammer is a true 22" subwoofer with power and performance beyond anything ever attempted in the mobile audio world. This behemoth, is capable of handling 6,000 watts of RMS power. Designed for those who want to show off the biggest woofer ever made no matter the price, the JackHammer will fit into most full-sized SUVs and some shorter models, like Escalades, with the third seat removed.

There are two versions of the JackHammer built for different applications. The SPL model (T9922-22) is perfect for excessive bass and competition use, while the SQL model (T9922-44) offers increased sound quality for "real life" listening. Both of these kits will work in the same motor for easy installation of either unit. You can order either of these models or just a re-cone replacement kit for the other and switch between the two without reinstalling the entire woofer. For more information, see the *Piston Change (Re-cone Kit)* section in this manual or call 1-800-CALL-MTX.

The most enormous subwoofer to date, the JackHammer is just the newest example of how MTX is the biggest, baddest, boldest car audio...ever!

## SPECIFICATIONS

Model	T9922-44	T9922-22
Description	22" SuperWoofer	22" SuperWoofer
Impedance	Dual 4 Ohm	Dual 2 Ohm
Frequency Response	20Hz-150Hz	20Hz-150Hz
Power Handling (RMS)	6000 Watts	6000 Watts
Recommended RMS Amplifier Power	3000-6000 Watts	3000-6000 Watts
Voice Coil Diameter	6.5"	6.5"
Magnet Weight	900 oz.	900 oz.
Mounting Depth	21 <sup>1</sup> / <sub>16</sub> "	21 <sup>1</sup> / <sub>16</sub> "
Cut Out Diameter	20 <sup>3</sup> / <sub>4</sub> "	20 <sup>3</sup> / <sub>4</sub> "
Sealed Enclosure Net Volume	4.2 ft <sup>3</sup>	TBD
Vented Enclosure Net Volume	8.7 ft <sup>3</sup>	TBD
Port Dimensions (Slot Port)	24 <sup>1</sup> / <sub>8</sub> " H x 3 <sup>3</sup> / <sub>16</sub> " W x 10"L	
Speaker Displacement	1.8 ft <sup>3</sup>	1.8 ft <sup>3</sup>
Port Displacement	.5 ft <sup>3</sup>	TBD
Tune Frequency	32Hz	TBD

### T9922-44

Fs = 16.76 Hz  
Qms = 5.19  
Vas = 239.1 liters  
Cms = 0.063 mm/N  
Mms = 1428 g  
Rms = 29.04 kg/s  
Xmax = 2.5 in  
Xmech = 3 in  
P-Dia = 17.95 in  
Sd = 1642 sq.cm

P-Vd = 0.366 cu.ft  
Qes = 0.6  
Re = 1.66 ohms  
BL = 20.39 Tm  
Qts = 0.538  
no = 0.181 %  
2.83V SPL = 91.55 dB

### T9922-22

Fs = TBD  
Qms = TBD  
Vas = TBD  
Cms = TBD  
Mms = TBD  
Rms = TBD  
Xmax = TBD  
Xmech = TBD  
P-Dia = TBD  
Sd = TBD

P-Vd = TBD  
Qes = TBD  
Re = TBD  
BL = TBD  
Qts = TBD  
no = TBD  
2.83V SPL = TBD

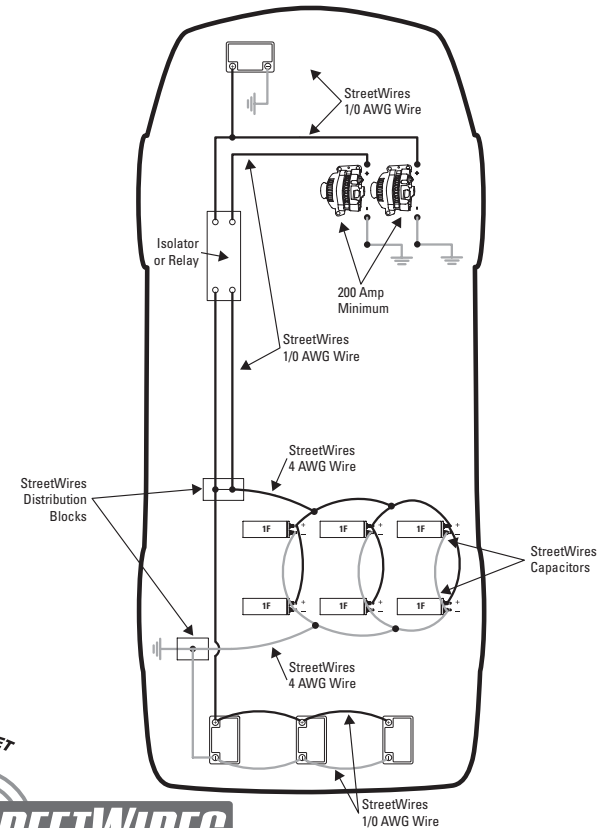
## BEFORE STARTING

It is very important that you have your JackHammer installed by an authorized MTX Elite Status retailer, preferably MECP certified. Before installation, make sure you have read the instructions carefully and have the following equipment:

- Fork Lift (or another means of lifting approximately 370 lbs.)
- Electric drill
  - <sup>5</sup>/<sub>32</sub>" drill bit
- Safety glasses
  - T-30 Torx
- Six <sup>5</sup>/<sub>16</sub>"-11 bolts 1 <sup>3</sup>/<sub>4</sub>" long
  - <sup>5</sup>/<sub>16</sub>" wrench or socket
- <sup>5</sup>/<sub>32</sub>" 4mm, <sup>3</sup>/<sub>16</sub>" hex keys
- 3mm hex wrench (if re-coning)

## ELECTRICAL UPGRADE

A factory electrical system will not be able to handle the power requirements of the amplifiers that are needed to drive the JackHammer. You will need to upgrade your vehicle's electrical system with both additional batteries and alternators. MTX Audio recommends West Co. SVR80 or SVR100 because they are a sealed battery that can be mounted in any configuration and supply the power needed and high-output alternators from either Ohio Generator or PowerMaster. Also, it is recommended to use anywhere from 3 to 6 StreetWires capacitors to help control the flow of power, call 877.STREET1 for more information. The diagram below shows the wiring needs of your entire vehicle. Please see the *Strapping Thunder Amplifiers* section for further information.



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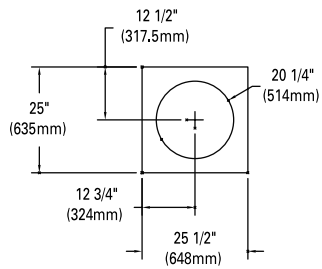
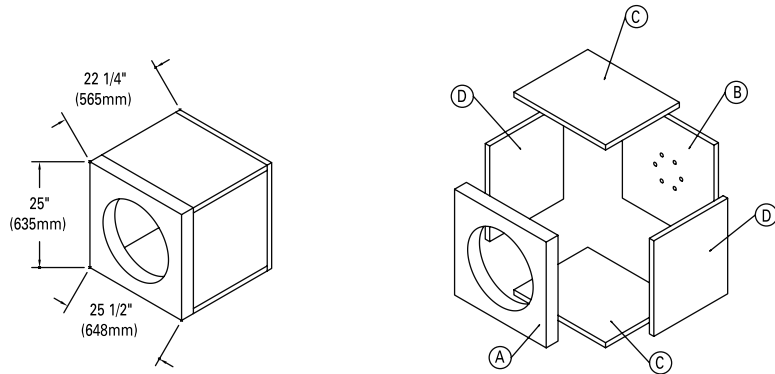
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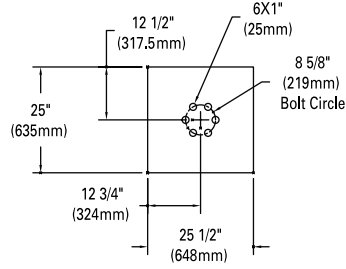
## RECOMMENDED ENCLOSURE REQUIREMENTS

### For Sealed Enclosures

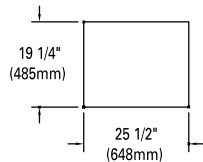
The JackHammer requires a volume of 4.2 cubic ft (net) per woofer. The woofer's displacement is 1.8 cubic ft. The total gross volume will be 6 cubic ft.



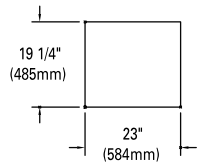
[A] - 2" (50mm) MDF



[B] - 1" (25mm) MDF



[C] - 1" (25mm) MDF

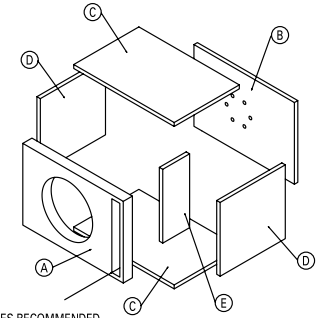
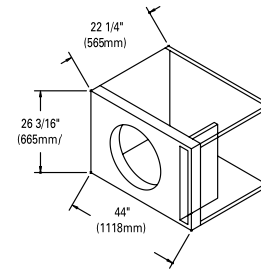


[D] - 1" (25mm) MDF

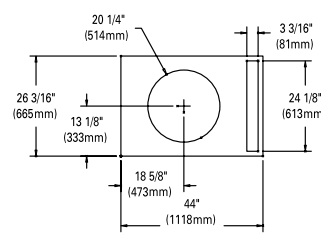
Additional ranges of sealed volumes for a sealed box is 5 cubic ft or greater gross volume.

### For Vented Enclosures

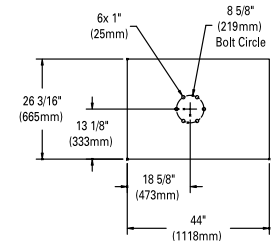
The JackHammer requires a volume of 8.7 cubic ft (net) per woofer. The woofer's displacement is 1.8 cubic ft. The port's internal dimensions are 24-<sup>1</sup>/<sub>8</sub>" x 3-<sup>3</sup>/<sub>16</sub>" x 10" and it takes approximately .5 cubic ft. The total gross volume will be 11.0 cubic ft.



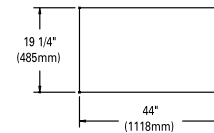
RADIUS PORT EDGES RECOMMENDED



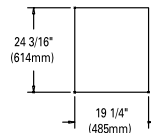
[A] - 2" (50mm) MDF



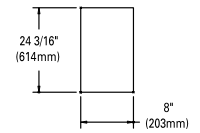
[B] - 1" (25mm) MDF



[C] - 1" (25mm) MDF



[D] - 1" (25mm) MDF

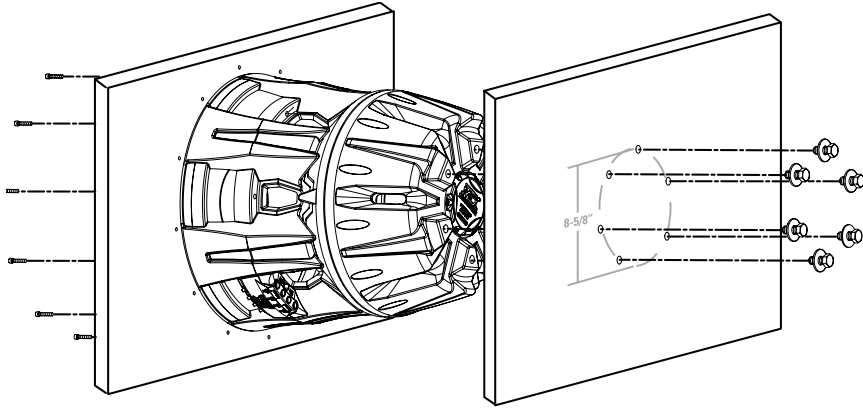


[E] - 1" (25mm) MDF

The final tuning frequency is 32Hz. Additional vented box suggestions are 7.75 to 9.5 (net) cubic ft. Remember to account for the driver (1.8 cubic ft) and the port displacement, with port tuning ranges from 32 to 42Hz, when mounting.

## MOUNTING

Mounting the JackHammer is nothing that can be taken lightly, quite literally. You need to follow the steps below carefully and have all the necessary equipment. You will need to be able to lift the nearly 370 lbs. subwoofer comfortably. MTX Audio recommends a fork lift for safe installation.



The woofer is designed to distribute its weight evenly throughout the entire structure. This is accomplished by including rear motor mounts with  $\frac{3}{8}$ "-11 bolts so it is mounted from both the front and the back. It is important that both these sides are mounted properly to ensure proper weight distribution. The drawing above shows the rear mounting hole detail for the back support. The holes are located on an 8  $\frac{5}{8}$ " bolt circle, meaning the holes are located on a radius of 4  $\frac{1}{16}$ " from the center point. Use the pallet from the Jackhammer packaging to make a mounting template if needed. For the recommended 1" baffle, the bolts needed should be  $\frac{3}{8}$ "-11 threaded bolts 1  $\frac{3}{4}$ " long. Washers should be used with the  $\frac{3}{8}$ "-11 bolts to be sure there will be no air leaks around the bolts.

**Note: MTX Audio also recommends making the back of the enclosure removable to replace the woofer cone if ever needed. This would make it possible to replace the cone assembly without removing the woofer.**

In the gasket of the woofer, there are four eyelet rings. Make sure they are screwed in securely and then attach a chain between them for lifting. Use one tine of the fork lift to lift the JackHammer with the chain then slowly lower it into the enclosure. Unscrew the eyelets and align the woofer with the front and rear mounting holes, and then fasten it using the screws and bolts provided. Remember to pre-drill the screw holes using a  $\frac{3}{32}$ " drill bit. Then, lift the enclosure, complete with JackHammer, into the back of the vehicle.

For models shipped already in the enclosure, installation becomes a step easier; you need to just lift the enclosure with JackHammer into the back of the vehicle. Continue on to the wiring section.

**Note: This unit is EXTREMELY heavy! Make sure everyone is clear and out of the way in case something should break or fall!**

**Note: MTX Audio is not responsible for damages occurred during installation. For custom installation help or answers to further questions, please call 1-800-CALL-MTX.**

## WIRING OPTIONS

Often overlooked, the installation components used to connect the entire system need to match the maximum capability of the system or you will lose performance. MTX Audio recommends using StreetWires 4 AWG cable as the speaker wire.

### Dual Voice Coil Wiring

JackHammer Superwoofers are available in a dual 2 Ohm (T9922-22) or dual 4 Ohm (T9922-44) voice coil configuration for either SPL or SQL uses. The voice coils are labeled VC1 and VC2.

**Note: Both voice coils should always be connected. See the section on Strapping Thunder Amplifiers for amplifier connections.**

### Independent Voice Coil Connection Configuration

This connection is ideal when using two Thunder TA81001 amplifiers per voice coil (4 amplifiers total). See the section on Strapping Thunder Amplifiers for amplifier connections.



### Parallel Configuration

T9922-44 – Wiring the voice coils in a parallel configuration will have a total final load of 2 Ohm. Connect each of the dual voice coil's positive terminals together so that they share the same source (amplifier). Do the same for the negative terminals. This connection is ideal when using two Thunder TA92001 amplifiers.

T9922-22 – Wiring the voice coils in a parallel configuration will have a total final load of 1 Ohm. Connect each of the dual voice coil's positive terminals together so that they share the same source (amplifier). Do the same for the negative terminals.



**Note: The wiring of the dual voice coils will affect impedance for the amplifier system. Care must be taken to assure that the resulting impedance does not exceed the amplifier's requirements.**

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## STRAPPING THUNDER AMPLIFIERS

Strapping amplifiers brings two mono-block amps together and unleashes the power of both into a single channel configuration. Think of it like a bridged 2-channel amp which takes a left channel and a right channel and combines them into one output. Strapping is essentially the same process. One of the mono-block amps serves as "one channel" and the other mono-block amp as the "second channel." The primary difference is that the two mono-block amps are not in the same heatsink like the channels of a 2-channel amp.

Strapping requires that the two mono-block amps function as one, so they must be set up to work together. Both amps need to receive the same exact signal, same exact level of signal, same exact voltage, etc... Just follow this guide to build the Biggest, Baddest, Boldest system...ever.

It has never been easier to strap two MTX Thunder TA92001s, or even two Thunder TA81001s, together to get maximum power from these super amplifiers. When strapped, expect power output to exceed 6,000 watts RMS for two TA92001 amps with a current draw around 600 amps. Or, for two TA81001 amps, over 3,000 watts of RMS power with a current draw of around 300 amps (Table 1).

### ELECTRICAL SYSTEM UPGRADES

When strapping Thunder Amplifiers, it is important to remember that to get the desired power from them, you need to supply them with the power they require. You must upgrade the stock battery and add additional batteries to the system. We recommend a minimum of three batteries with a cold cranking amp (CCA) rating of 725 or more. Please remember to install a minimum of 1/0 AWG StreetVires power and ground cable for each alternator. Two 200 amp or greater alternators are strongly recommend for this system because these amplifiers are capable of pulling more than 600 amps. After your bank of minimum three batteries, you will need to run 1/0 wire to each amplifier. Just adding extra batteries will not solve the need for power. It will actually put more of a load on the alternator, in turn yielding less power to the audio system.

MTX Audio recommends West Co. SVR80 or SVR100 because they are a sealed battery that can be mounted in any configuration and supply the power needed, and high-output alternators from either Ohio Generator or PowerMaster.

Table 1: RMS Power Output for Strapped Thunder Amplifiers

	Two TA92001	Two TA81001
14.4Vdc @ 4Ω	4000 Watts	2000 Watts
14.4Vdc @ 2Ω	6000 Watts	3000 Watts

(wattage is combined power from all amps)

### STRAPPING TWO TA92001 AMPLIFIERS

To successfully strap two TA92001 amplifiers, follow the process outlined here carefully. It details how to configure each amp so one becomes the "positive" (Push) amplifier and the other becomes the "negative" (Pull) amplifier.

1. Connect the amplifiers' power, ground, and remote but do not supply the 12 volts from the batteries to the amplifiers until later in the process.
2. Label the first amplifier as the Positive amp. Set the phase switch on this amp to 0°. Label the second amplifier as the Negative amp and set the phase switch on this amp to 180° (Figure 1).

3. Using a "Y" adapter, split the "Left" side of the RCA output from the source to the "Left" RCA input receptacles on each amp. Using another "Y" adapter, split the "Right" side of the RCA output from the source to the "Right" RCA input receptacles on each amp (Figure 1).

**Note: Only the positive speaker terminals on each amplifier will be used.**

4. Connect the positive side of the speaker wire to the "positive" speaker terminal of the amplifier labeled Positive. Connect the negative side of the speaker wire to the "positive" speaker terminal of the amp labeled Negative (Figure 2).

**Note: The voice coils on the JackHammer must be paralleled (Figure 2). Be sure that the impedance of the subwoofer is no lower than a 2 ohm load to avoid possible damage to the amplifier.**

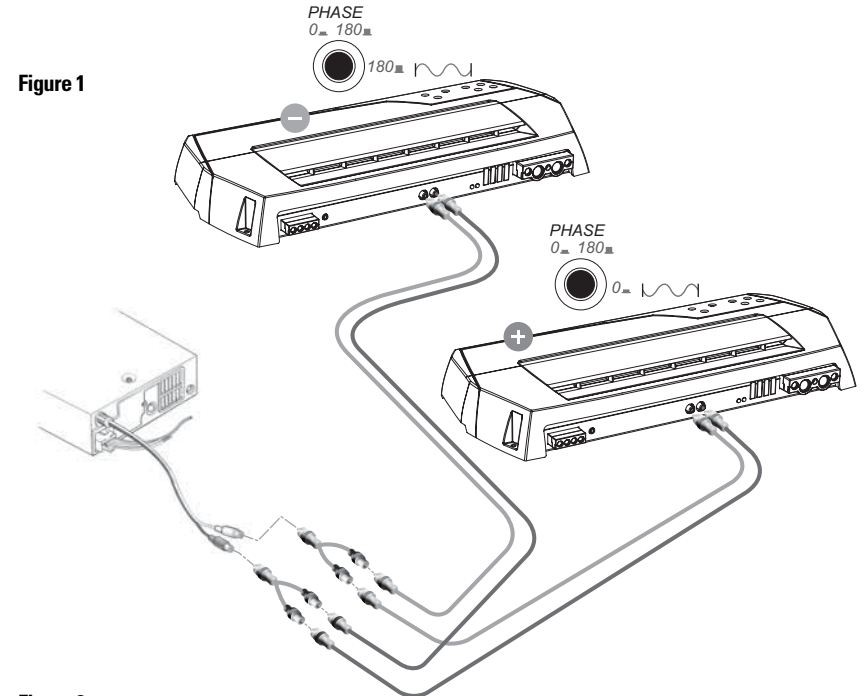
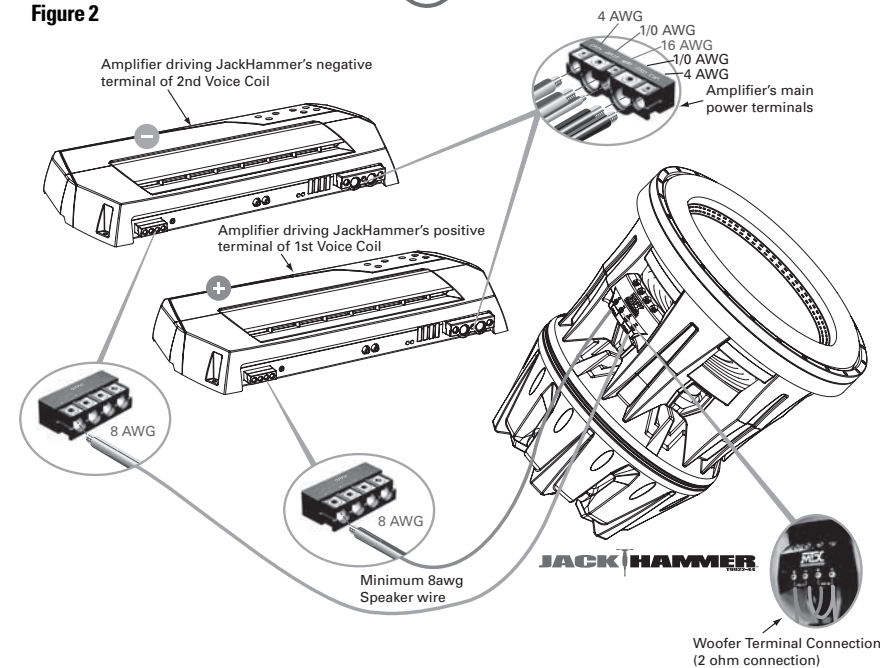


Figure 2



5. Check to be sure all connections are made and the impedance is within range. Once everything is setup correctly, supply the amplifiers with the 12 volts of power from the batteries.

### STRAPPING TWO TA81001 AMPLIFIERS PER VOICE COIL

It is also possible to connect four TA81001 amplifiers by strapping two TA81001s per voice coil. To do this, follow the steps when strapping two TA92001. Those procedures are outlined earlier in this manual. The only exception is that you will now be using two amplifiers for each voice coil. See Figure 3.

Gain setting is done the same as the two TA92001 setup.

**Note: Using two TA81001 amps strapped per voice coil produces a total of over 4,000 watts of RMS power with a current draw of around 400 amps.**

### SETTINGS AND TUNING

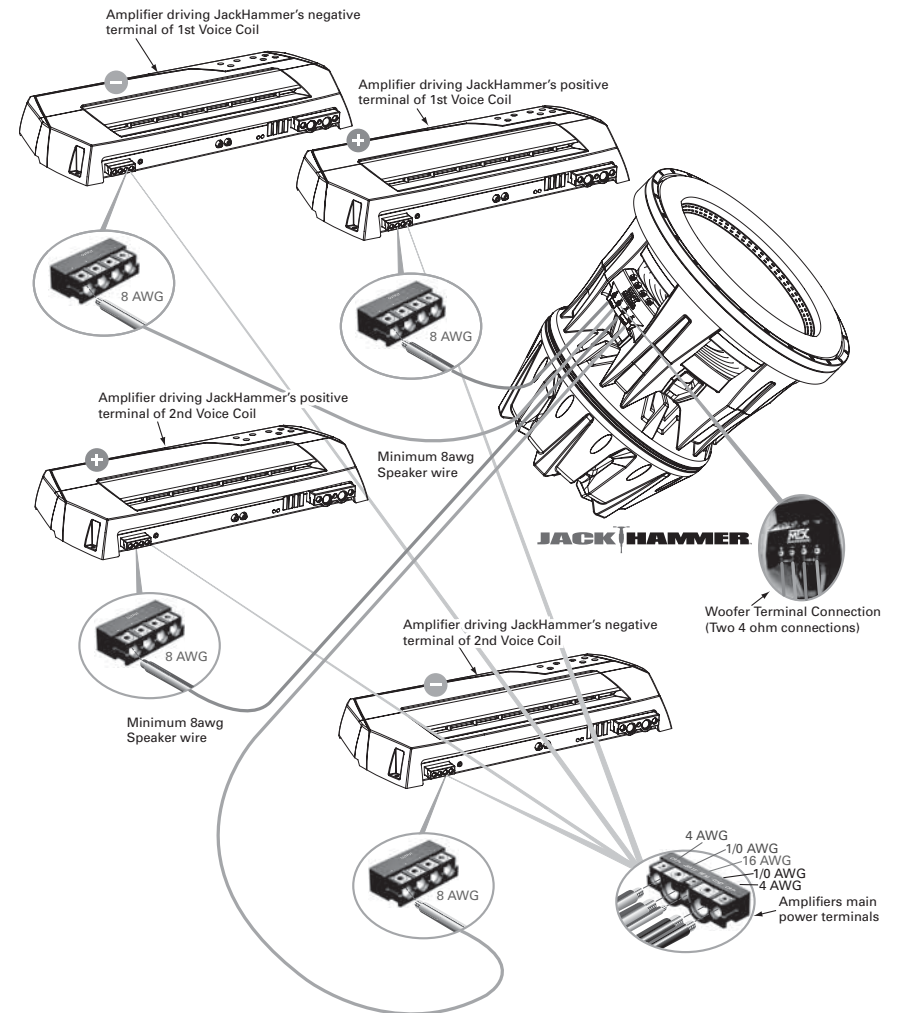
Strapped amplifiers require "gain matching." This is the process of adjusting each amplifier's gain, frequency, and EQ to be sure both amplifiers are sending the same AC voltage to the woofer. This will require a volt ohm/multi meter and test tones.

1. Disconnect the speaker wires from each of the amplifier's output terminals. It is important to measure the amplifier's output with no load (i.e. no speakers connected to the output terminals of the amplifier).
2. Set the volume of the headunit to max output (before clipping occurs), play a flat tone (60-80Hz) through the source unit, and hit repeat. Use this same frequency and volume throughout this process.
3. Set the gains on each amplifier to the most sensitive setting within their proper range. Make sure the input sensitivity is set to the x1 setting for a low level RCA input. (See the amplifier's quick install sheet for gain adjustments).
4. Set the multi meter to AC voltage and connect it to the Positive amplifier's positive and negative output terminals to measure that amplifier's output voltage. Switch the multi meter between the amps and measure each of them to determine which one has the lowest output.

**Note: Even the difference of 1 volt can significantly alter the performance of your system.**

5. Match the other amplifier's gain to the one with the lowest output. Use the flat tones to gauge what are necessary adjustments.
6. Now that you have matched your amps you will need to set the crossover. It is recommended to have a crossover setting of 60-80Hz and the subsonic filter turned off.
7. The parametric EQ can be used to adjust  $\pm 12\text{dB}$  from 30-80Hz with a variable "Q" of 0.5 to 4. Using the boost in the 60-80Hz region with a "Q" of 1 or 2 is suggested. The "Q" adjusts the bandwidth of frequencies that are boosted or cut. For more information, read the owner's manual for the amplifier.

Figure 3



## PISTON CHANGE (RE-CONE KIT)

Along with the excessive SPL, MTX has created a replaceable cone assembly so the competition level of bass (done with the dual 2Ω voice coils) can be switched out with a dual 4Ω voice coil for every day listening with increased sonic quality and still be the same speaker with excessive high SPL. But since the installation of the JackHammer is a large investment in time and resources, the cone can be removed without removing the entire sub or enclosure.

Re-coning the woofer is surprisingly easy. No glue is needed, just bolts, and if you followed the enclosure design it can be done without taking the woofer out of the enclosure. Directions for either procedure follow.

### To Re-cone the Woofer when Removed from the Enclosure

To remove the cone, unscrew the twelve 3/8" hex screws from the front gasket of the woofer and remove the gasket. Next remove the six 1/2" hex screws from the back of the spider plateau and loosen the tinsel leads at the terminal. The tinsel leads are the four 3mm hex screws at the top of the terminal that hold the voice coil wires. Gently pull on the cone under the surround and the cone assembly should pull away from the woofer motor. Be sure and pull evenly to prevent the assembly from binding in the basket. You are now ready to put in the new re-cone kit.

Place the new cone assembly into the woofer motor. Make sure to align the tinsel leads from the re-cone kit with the terminals and line up the large notches in the surround with the largest holes in the basket. Insert the tinsel leads into the terminal ensuring the red lead is going into the positive (+) position and the black lead is going into the negative (-) position. Tighten the four set screws and then slightly tug in the tinsel leads to make sure they are tight in the terminal.

Next, insert the six 1/2" hex screws back into the spider plateau and tighten. Replace the top gasket over the surround on the top of the woofer. The counter-bore holes in the gasket need to align with the smaller threaded holes in the basket. Insert the twelve 3/8" hex gasket screws into the counter-bored holes and tighten. Your new cone is now installed and you are ready to once again experience the JackHammer's extreme bass!

### To Re-cone the Woofer when Installed in the Enclosure

If you have made the back removable, as suggested earlier in this manual, you can remove the cone without removing the woofer from the enclosure. To remove the cone, unscrew the twelve 3/8" hex screws from the front gasket of the woofer and then remove the top gasket. DO NOT remove the T-30 wood screws because the gasket can be removed with these still in place. Next, remove the six 1/2" bolts from the back with a 1/8" wrench and pull off the back of the enclosure. Then, remove the six 1/2" hex screws from the back of the spider plateau and loosen the tinsel leads at the terminal. The tinsel leads are the four 3mm hex screws at the top of the terminal that hold the voice coil wires. Gently pull on the cone under the surround and the cone assembly should pull away from the woofer motor. Be sure and pull evenly to prevent the assembly from binding in the basket. You are now ready to put in the new re-cone kit.

Place the new cone assembly into the woofer motor. Make sure to align the tinsel leads from the re-cone kit with the terminals and line up the large notches in the surround with the largest holes in the basket. Insert the tinsel leads into the terminal ensuring the red lead is going into the positive (+) position and the black lead is going into the negative (-) position. Tighten the four set screws and then slightly tug in the tinsel leads to make sure they are tight in the terminal.

Next, insert the six 1/2" hex screws back into the spider plateau and tighten. Replace the top gasket over the surround on the top of the woofer. The counter-bore holes in the gasket need to align with the smaller threaded holes in the basket. Insert the twelve 3/8" hex gasket screws into the counter-bored holes and tighten. Finally, replace the back of the enclosure and re-attach the 1/2" bolts to support the back of the woofer. Your new cone is now installed and you are ready to once again experience the JackHammer's extreme bass!

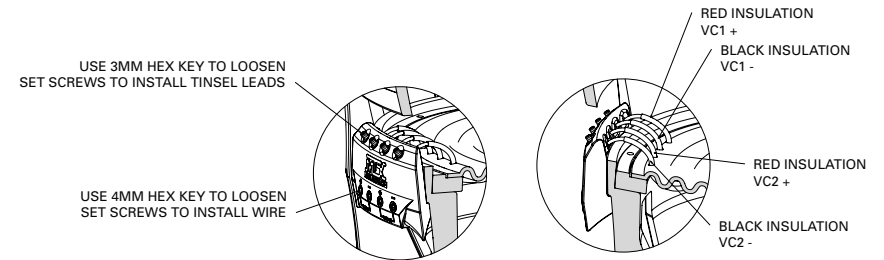
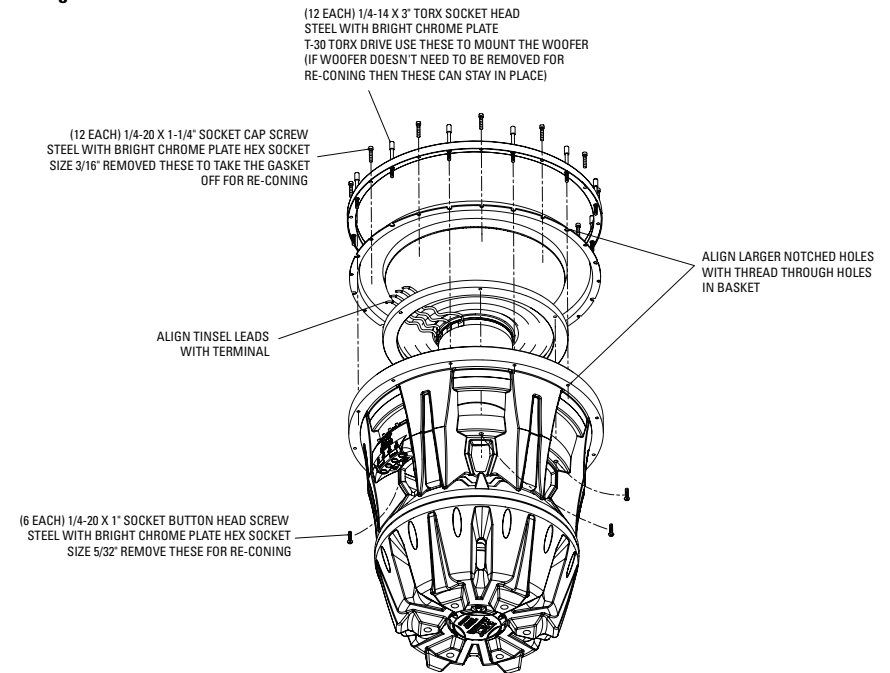


Figure 4







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Due to continual product development, all specifications are subject to change without notice.

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