

OPERATOR'S MANUAL

OMX-432

Active 4-Way Crossover

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PrecisionPower

Amplifiers, Signal Processors and Accessories

MADE IN THE U.S.A.

MADE IN THE U.S.A.

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CONGRATULATIONS

Congratulations! You have taken advantage of our new Precision Power High Performance Mobile Audio Equipment. In your selection of the OMX-432 crossover, you will notice its unique capabilities, high-tech design, and use of "tomorrow's" technology today.

Precision Power is a proven world leader in mobile audio electronics. Specializing in the design, engineering, and manufacturing of our state-of-the-art amplifiers, crossovers, equalizers, and accessories. These products will help to further enhance your personal sound system.

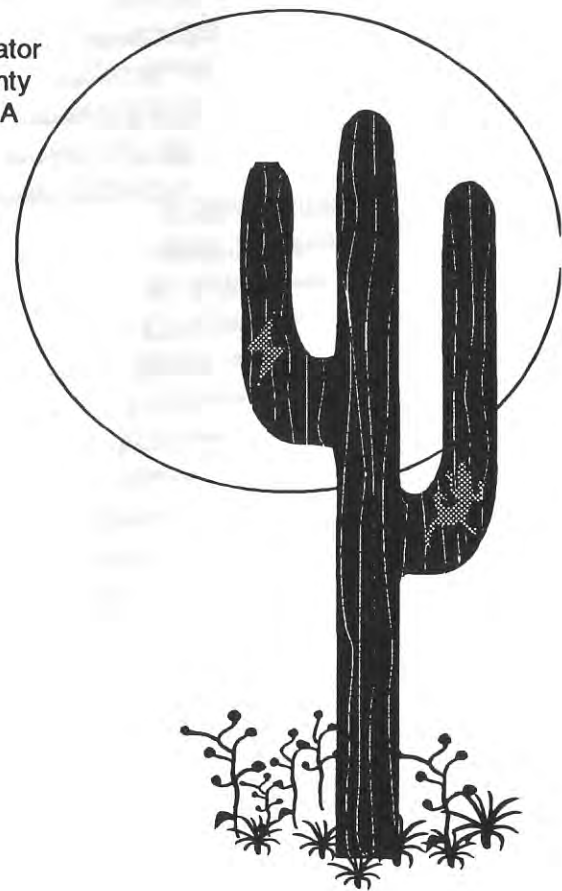
To achieve optimum satisfaction and highest quality performance from your new OMX-432, please read this manual thoroughly before installation. Keep the manual in a safe place and refer to it as you continue to refine your system. If you encounter difficulties during or after installation and are unable to resolve the problem, please contact your PPI dealer or call Precision Power during business hours (8am to 5pm MST) at 1-800-62-POWER for further assistance.

CAUTION The use of a high-powered stereo system may cause hearing loss or damage. While Precision Power systems are capable of "concert level" volumes with incredible accuracy, they are designed for you to enjoy the subtleties created by musicians for listening at reasonable sound pressure levels. The use of a high power stereo system may impair your ability to hear traffic sounds, thus may constitute a traffic hazard. PPI advises lower volume levels while driving.



FEATURES

- * Ultra-Wide Bandwidth Circuitry
- * 18 dB/Octave Subsonic Filter
- * 12 dB/Octave Crossover Slope
- * Adjustable Crossover Points
- * Independent Level Controls
- * Stereo Low Pass (Sub)
- * Conductive Plastic Potentiometers
- * Gold RCA Input Connectors
- * On Board Power Supply or Phantom Powered
- * Remote Turn-On
- * Internally Fused
- * LED Power Indicator
- * Two Year Warranty
- * Made in the U.S.A





GLOSSARY

The following terms are used within this manual. Since they may be unfamiliar, definitions are provided as follows.

- Low Pass** The set of frequencies which constitute a band that are passed, high frequencies are attenuated. The cutoff points are user-defined within the specifications of the product.
- High Pass** The set of frequencies which constitute a band that are passed, low frequencies are attenuated. The cutoff points are user-defined within the specifications of the product.
- Phantom Power** Power supplied to Precision Power accessories from a PPI amplifier via the DIN cables.
- Remote Turn-On** Low current automatic switching circuit which is connected to the source unit via the blue wire when the OMX-432 is powered using the supplied power harness.



SPECIFICATIONS

Signal-to-Noise Ratio	102 dB V
Total Harmonic Distortion	<0.004% (1K Hz, 1 Vrms)
Input/Output Gain	- INFINITY to +10 dB
Frequency Response (within bandpass)	< ±1 dB
Sub Low Pass Crossover Frequency (-3 dB)	55 Hz - 220 Hz
Bass High Pass Crossover Frequency (-3 dB)	55 Hz - 200 Hz
Bass Low Pass Crossover Frequency (-3 dB)	100 Hz - 1K Hz
Mid High Pass Crossover Frequency (-3 dB)	100 Hz - 1K Hz
Mid Low Pass Crossover Frequency (-3 dB)	480 Hz - 5K Hz
Treble High Pass Crossover Frequency (-3 dB)	480 Hz - 5K Hz
Subsonic Filter	-18 dB/Octave @ 14 Hz
Crossover Slopes	12 dB/Octave
Input Impedance	10K Ohms
Maximum Output (10 K Ohm load)	8 Vrms
Power Requirements (via DIN connector)	±15 volts, 55 mA
Dimensions	1"H x 6.78" W x 5.1"D



TOOLS FOR INSTALLATION

- * Phillips Screwdriver
- * 7/64" Allen Wrench
- * Drill & Bit
 - size is personal preference
 - (we suggest a .110 bit for #6 metal screws)
- * 2 Screws & 2 Washers
 - size to match with drill bit
 - type is personal preference
 - (we suggest #6 metal screws)



INTRODUCTION

The OMX-432 is an infinitely adjustable active electronic crossover designed to interface with multiple amplifier systems. It is of simple character offering flexibility and compatibility in a variety of applications. The OMX features four outputs, Sub, Bass, Mid, and Treble, each with a level control allowing it to function as a system tuning and balancing device. These frequency ranges have a 12 dB/Octave crossover slope (second-order Butterworth active crossover filter) to limit the outputs tightly to their intended passbands. These filters also yield the best combination of amplitude and phase response to cure car acoustic problems. Also, to prevent subsonic frequency noise from interfering with low frequency performance, an 18 dB third-order subsonic highpass filter is used at 14 Hz. This will also help to prevent intermodulation distortion. You will find the OMX-432 to be sufficient and well rounded to your needs.



INSTALLATIONS

INPUTS

Featured on the rear panel is a set of RCA inputs. For the added convenience of PPI products a DIN jack is also located to the left of the RCA inputs. (Refer to Fig. A) Either RCA or DIN may be utilized to connect to the output of a low-level source such as a radio/tape unit, CD player, or an equalizer.

OUTPUTS

Four DIN outputs are located on the rear panel. (Refer to Fig A) These outputs include the Sub, Bass, Mid, and Treble. They connect directly to the inputs of other Precision Power components, such as an amplifier or equalizer. A DIN-to-RCA adapter is available for connection to other manufacturer's products.



POWER

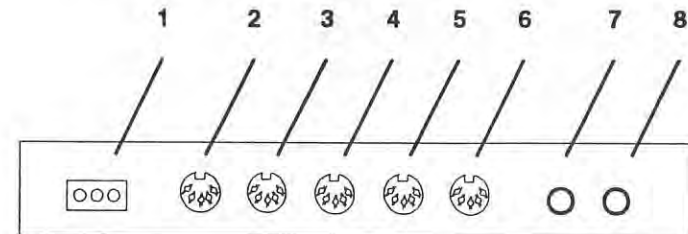
The OMX-432 may be powered either from the vehicle's 12-volt battery, any 12 volt DC supply, or from a Precision Power amplifier. If a Precision Power amplifier is used in the system, it can provide power for the OMX and other accessories by interconnecting the system using DIN cables which carry "phantom" power along with audio signals. The accessories will turn on and off with the amplifier(s). If a Precision Power amplifier is not used in the system, or if it isn't practical to use DIN interconnects, the OMX can be connected to +12 volts, chassis ground, and a remote switching +12 volt source for turn-on by means of a 3-wire harness, which is provided. This harness plugs into a mating socket on the rear panel of the OMX. (Refer to Fig. A) The wires are color coded as follows:

+12 Volts Red Wire
Chassis Ground Black Wire
Remote Turn-On Blue Wire

The +12 volt connection is fused inside the unit. Therefore, a fuse is not required within the power harness. The internal fuse is **not** user-replaceable. If the OMX-432 does not power up, contact your dealer or Precision Power at 1-800-62-POWER for assistance.

Note: When a power harness and DIN signal interconnects are used on the OMX-432 simultaneously, the +12 volt power will override the DIN's "phantom" power for the OMX only. PPI accessories may still be "phantom" powered through the DIN interconnects by a PPI amplifier. *The OMX does not "phantom" power other accessories.*

FIG. A Back Panel of OMX-432



- 1. 3-pin Power Socket
- 2. Treble Output
- 3. Mid Output
- 4. Bass Output

- 5. Sub Output
- 6. DIN Input
- 7. Left RCA Input
- 8. Right RCA Input



CONTROLS



To help learn the frequency spectrum of the OMX-432 refer to the diagram at the bottom of the page while reading through the frequency controls. Note: the tracking frequencies are gapped for clarity purposes only.

SUB

The Sub frequency control adjusts the crossover point of the **Sub Low Pass** frequencies. Frequencies above the selected crossover point will be attenuated on the Sub output at 12 dB/Octave. The crossover point is overlapped or gapped to cure common acoustic response problems, optimizing low frequency performance. When adjusting the Sub frequency, turn the Sub Level control to the 2 o'clock (0 dB) position. The Sub frequency control is located on the front panel (FIG. B, #2).

SUB LEVEL

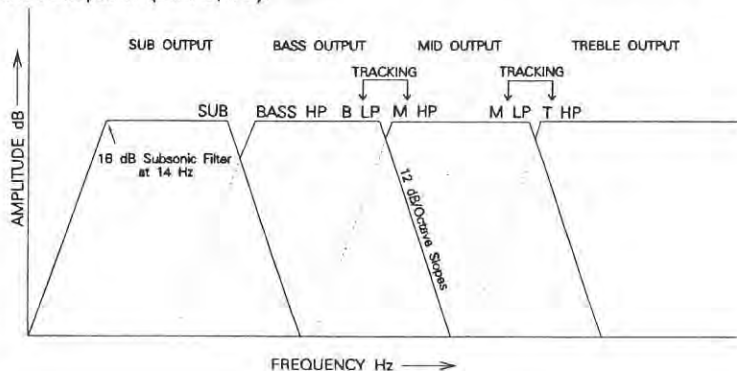
The Sub Level control adjusts the amplitude of the Sub Low Pass, on the Sub output, from - Infinity (off) to +10 dB, relative to the input signal level. Refer to the System Tuning section for adjustment of the Level controls. The Sub Level control is located on the front panel (FIG. B, #3).

BASS HP (BASS HIGH PASS)

The Bass HP frequency control adjusts the crossover point of the **Bass High Pass** frequencies. Frequencies below the selected crossover point will be attenuated on the Bass output at 12 dB/Octave. The crossover point is overlapped or gapped to cure common acoustic response problems. The Bass Low Pass (B LP) tracks with the Mid High Pass (M HP). This provides continuous frequency response. When adjusting the Bass HP frequency turn the Bass Level control and Mid Level control to the 2 o'clock (0 dB) position. The Bass HP frequency control is located on the front panel (FIG. B, #4).

BASS LEVEL

The Bass Level control adjusts the amplitude of the Bass HP, on the Bass output, from - Infinity (off) to +10 dB, relative to the input signal level. Refer to the System Tuning section for adjustment of the Level controls. The Bass Level control is located on the front panel (FIG. B, #5).



B LP/M HP (BASS LOW PASS/MID HIGH PASS)

The B LP/M HP frequency control adjusts the crossover point of the **Bass Low Pass** frequencies and **Mid High Pass** frequencies. Again these frequencies will track providing a continuous frequency response. For the Bass Low Pass, the frequencies above the selected crossover point will be attenuated on the Bass output. For the Mid High Pass, the frequencies below the selected crossover point will be attenuated on the Mid output. Both attenuated at 12 dB/Octave. The Mid Low Pass (M LP) tracks with the Treble High Pass (T HP) frequency. When adjusting the B LP/M HP frequency turn the Bass Level control, Mid Level control, and Treble Level control to the 2 o'clock (0 dB) position. The B LP/M HP frequency control is located on the front panel (FIG. B, #6).

MID LEVEL

The Mid Level control adjusts the amplitude of the B LP/M HP, on the Mid output, from - Infinity (off) to +10 dB, relative to the input signal level. Refer to the System Tuning section for adjustment of the Level controls. The Mid Level control is located on the front panel (FIG. B, #7).

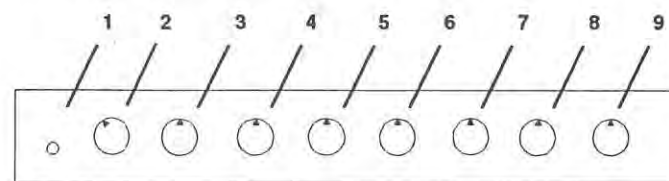
M LP/T HP (MID LOW PASS/TREBLE HIGH PASS)

The M LP/T HP frequency control adjusts the crossover point of the **Mid Low Pass** frequencies and **Treble High Pass** frequencies. Again these frequencies will track providing a continuous frequency response. For the Mid Low Pass, the frequencies above the selected crossover point will be attenuated on the Mid output. For the Treble high pass, the frequencies below the selected crossover point will be attenuated on the Treble output. Both attenuated at 12 dB/Octave. When adjusting the M LP/T HP frequency turn the Mid Level control and Treble Level control to the 2 o'clock (0 dB) position. The M LP/T HP frequency control is located on the front panel (FIG. B, #8).

TREBLE LEVEL

The Treble Level control adjusts the amplitude of the M LP/T HP, on the Treble output, from - Infinity (off) to +10 dB, relative to the input signal level. Refer to the System Tuning section for adjustment of the Level controls. The Treble Level control is located on the front panel (FIG. B, #9).

FIG. B Front Panel of OMX-432



1. On/Off Indicator
2. Sub Frequency Control
3. Sub Level Control
4. Bass HP Frequency Control
5. Bass Level Control
6. B LP/M HP Frequency Control
7. Mid Level Control
8. M LP/T HP Frequency Control
9. Treble Level Control



MOUNTING

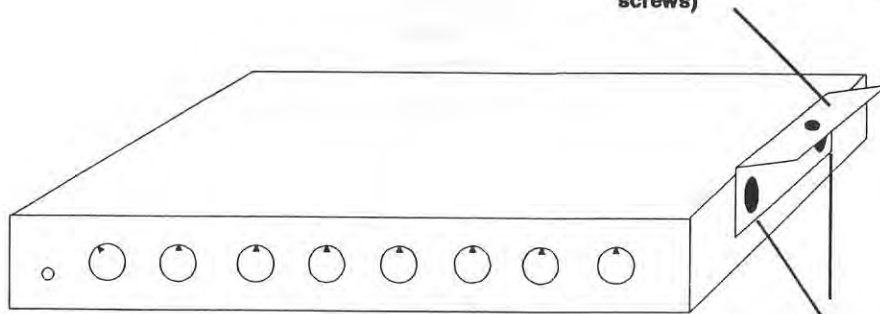
For under dash or floor mounting applications, two brackets are provided. This allows adjustment of the OMX-432 into the desired operating position. (Refer to Fig. C) The brackets are connected to the crossover by two 6-32 x 1/4" socket head cap screws (provided). Secure to underside of dash or floor with single metal screw, we suggest #6 metal screws, (not provided).

If the unit is to be mounted in a dashboard, console, or other type of panel, a 31/32" x 6 25/32" rectangular hole should be cut to clear the chassis. A minimum depth of 6 1/2" is required behind the panel to allow space for the connection cables. You will need to supply brackets and screws for in dash mounting. We suggest securing with #6 metal screws.

Precision Power has added two 4-40 Phillips Head screws in the event the unit needs to be removed from within the dash. First, remove the front plate screws and insert the 4-40 screws 1/4" into the front plate through the chassis. **Be careful not to strip the threads.** Next, remove screws from side brackets. Gently pull on the 4-40 screws removing the OMX from the brackets and dash.

**FIG. C Under Dash or Floor
Mounting of OMX-432**

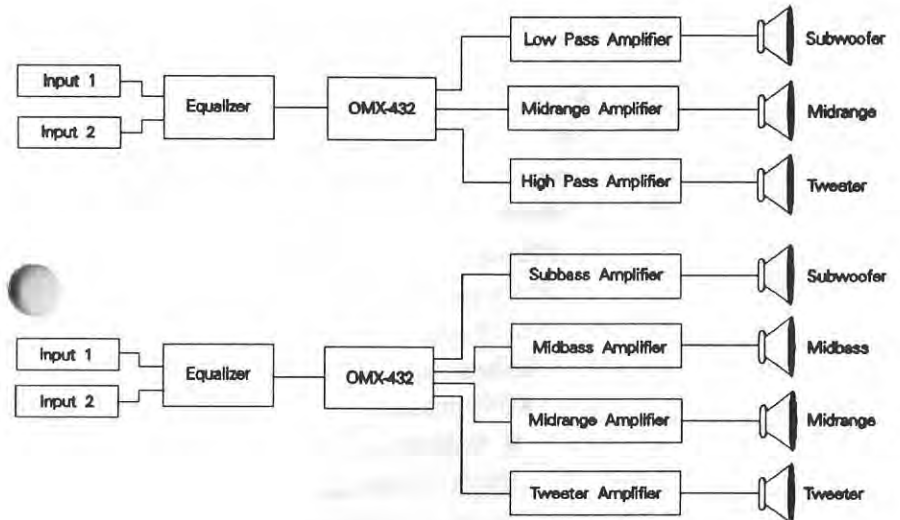
Fasten bracket to dash or floor with single metal screw (not provided, we suggest #6 metal screws)



Mount to side panel of OMX-432 with two 6-32 x 1/4" socket head cap screws (provided)



SAMPLE HOOKUP CONFIGURATIONS



3 Way Mode: It is recommended to utilize the Sub, Mid, and Treble outputs for the best response and most flexibility. In this configuration reversing the polarity on the Midrange amplifiers outputs may yield a smoother frequency response do to the 2nd order filter slopes.

4 Way Mode: Reversing polarity on the Midbass and Tweeter amplifiers outputs may yield a smoother frequency response.



SYSTEM TUNING

In order to achieve maximum signal-to-noise performance from a high quality auto stereo system, it is desirable to use high signal levels wherever possible in the interconnection cables. High signal levels will reduce the effect of induced noise. The peak level of an audio signal is usually determined by the clipping level of electronic components. The following procedure should be used as a guide when the system installation is complete.

Adjusting equalizer input gains:

1. Turn the equalizer's volume control to minimum.
2. Set the output level to maximum. Some units may have a switch.
3. If available, set selector switch to either input 1 or input 2.
4. Adjust all equalizer input gains to minimum.
5. For the chosen input play the respective music source, such as a cassette, CD, or FM station. A loud music selection is desired.
6. For the chosen input, increase the left input gain control until the onset of audible distortion. Then decrease the gain prior to the immediate point of audible distortion. This setting will minimize system background noise and prevents overloading of the equalizer. Adjust, for the same input, the right input gain control for proper left/right balance.
7. Set selector switch to the alternate source unit, if used, and repeat steps 5 and 6.
8. Adjust the OMX-432 crossover next.



SYSTEM TUNING

Adjusting OMX-432 crossover input gains:

1. Adjust all of the OMX-432's Level controls (gain control) to 0 dB, approximately 2 o'clock position.
2. Adjust all amplifier gains to 1/2 of maximum sensitivity.
3. Turn the volume knob on the equalizer to a maximum of 3 o'clock.
4. Adjust each Level control on the OMX-432 until you have achieved proportional balance.
5. Repeat step 4 for any remaining crossovers in the system.
6. Adjust amplifier input gains next.

NOTE: In multi-crossover/accessory systems, the gain of some crossovers/accessories may need to be further increased or decreased to achieve proportional balance.

Adjusting amplifier input gains:

1. Adjust all amplifier gains to 1/2 of maximum sensitivity.
2. Turn the volume knob on the equalizer to a maximum of 3 o'clock.
3. Increase the gains on the amplifier until the onset of audible distortion. Then decrease the gains prior to the immediate point of audible distortion. This setting will minimize system background noise and prevents overloading the amplifier.
4. Repeat step 3 for any remaining amplifiers in the system.

NOTE: Depending on the sensitivity of the system's preamp(s), the gain of the amplifier(s) may not need adjustments. Also, in multi-amplifier systems, the gain of some amplifiers may need to be further decreased to achieve proportional balance.



TROUBLESHOOTING

If for some reason your system fails to operate properly, please refer to this guide. If you are unable to resolve the problem, consult your dealer or call Precision Power at 1-800-62-POWER for further assistance.

NO SOUND

Is the power LED illuminated?

Be sure Turn-On lead is connected. Check signal leads. Check gain control. Check source unit's volume level.

If "phantom" powered...

Check to see that at least one amplifier is working. Check DIN cables.

NO SOUND IN ONE CHANNEL

Check Audio Leads.

Inspect for short circuit or open connection.

Identify working channel.

Reverse Left and Right crossover inputs to determine if it is occurring before the crossover.

If opposite channel now functions.

Problem is ahead of crossover, meaning before the inputs.

If same channel now functions.

Problem is with rest of the system. (i.e. incorrect wiring, faulty amplifier or crossover).

WEAK SOUND

Check Mono Bridge and Bi Amp Crossover Switches on other devices prior to the OMX-432.

Depress switches to ensure proper position with respect to the installation.

If problem is with crossover...

Have your dealer inspect the unit.

Check gain and/or level control on all units.

Make sure correct balance exists between lows and highs.

Check crossover output wiring.

Make sure lows and highs are wired to the correct amplifier. Make sure equalizer crossover frequencies are the correct range for your particular speakers.



THANK YOU

Thank you again for choosing Precision Power's OMX-432 to enhance your system. Your complete satisfaction is important to us. If you have any comments please feel free to write us.

To update your system with our state-of-the-art equipment we invite you to try our other products. Please consult your PPI dealer for further information.

Precision Power is the competitive edge





LIMITED WARRANTY

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Precision Power, Inc. (PPI) warrants its amplifiers and accessories to be free from defects in materials and workmanship under normal use and service for a period of two years from the date of original purchase. The extent and conditions of PPI's Limited Warranty are as follows:

1. PPI warrants that it will either repair or replace at no charge any unit which PPI's examination discloses to be defective and under warranty, provided the defect occurs within two years from the date of purchase, and the product is returned immediately to PPI.
2. The date of purchase of a PPI Amplifier and/or Accessory must be established by an original sales receipt which must accompany the article being returned for warranty work.
3. The provisions of this warranty shall not apply to any PPI unit used for a purpose for which it is not designed, which has been repaired or altered in any way, or which has been connected, installed, or adjusted other than in accordance with the instructions furnished in PPI's owner's manual. Nor shall this warranty apply to any part which has been subject to misuse, neglect, or accident.
4. PPI does not authorize any other person to assume any other liability in connection with its products. THIS WARRANTY IS THE ONLY EXPRESS WARRANTY MADE BY PPI APPLICABLE TO ITS PRODUCTS. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO PPI'S AMPLIFIERS AND/OR ACCESSORIES IS LIMITED IN DURATION TO THE DURATION OF THIS LIMITED WARRANTY. PPI SHALL NOT BE LIABLE FOR THE INCIDENTAL, CONSEQUENTIAL, OR COMMERCIAL DAMAGES RESULTING FROM THE BREACH OF THIS WRITTEN WARRANTY. Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts; so the above limitations or exclusions may not apply to you.
5. Your unit will be serviced on an in-warranty basis within the warranty period for the correction of warranted defects. Do not return the article to your dealer. Return the article including your name, telephone number, and return address with the description of the problem to:

Precision Power
Warranty Department
4829 S. 38th Street
Phoenix, AZ 85040

TO RETURN ARTICLES OUT OF WARRANTY. Return the article, postage prepaid, in the original protective carton. Include in the package a description of the problem and, if desired, a request for an estimate of repair costs. Unless a request for an estimate is included, the unit will be repaired as necessary. Fifty dollars (\$50.00) labor, plus parts will be charged for all product repairs. The repaired unit will be returned to the customer with an itemized statement, C.O.D.