PHOENIX GOLD INTERNATIONAL
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Portland, OR 97203	Portland, OR 97283	Portland, OR 97203

8100.0069A

8100.0069A

Dear Phoenix Gold Enthusiast,

I thank you for purchasing Phoenix Gold. By doing so, you have demonstrated a desire to own the finest audio components available for the car and home. At Phoenix Gold, we use state-of-the-art design, engineering and production methods to continually improve the quality, reliability and performance of our products.

Properly installed by an Authorized Phoenix Gold Mobile Electronics Retailer, this equipment will provide years of enjoyment. For proper operation, please read this manual carefully and keep it for future reference.

Keith Peterson
President

ZERO point

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FEATURES AND SPECIFICATIONS

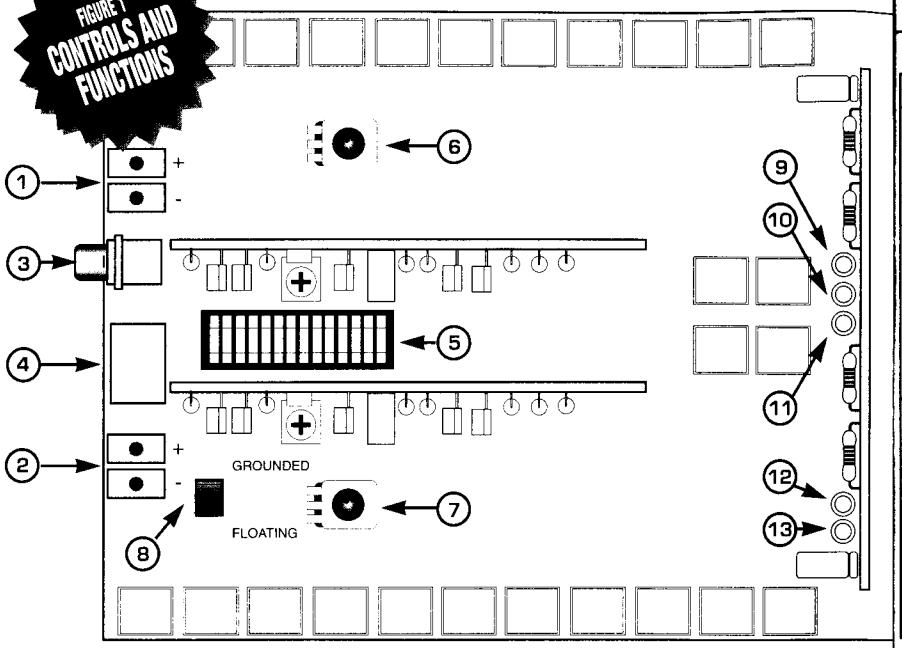
- True balanced line-level inputs for incredible noise rejection when used with compatible Phoenix Gold signal processors.
- Features our proprietary TCCH™ (Thermal Convection Cooled Heatsink) design.
- Advanced PSM™ (Power Supply Management) circuitry compensates for low impedance loads.
- PSM status LED's indicate High Current or High Voltage operating modes.
- Power-on, Thermal and Overload LED indicators.
- High Current Triple-Darlington Output Stage.
- Tri-Linear™ operation (simultaneous stereo and bridged mono operation) enhances system flexibility.
- Stable into 1 ohm mono or 1/2 ohm stereo speaker loads.
- Advanced muting circuitry eliminates turn-on and turn-off noises.
- 2 layer, 2 ounce 24kt Gold Plated Copper G10 Glass-Epoxy printed circuit boards.
- Audiophile grade WIMA capacitors and 1% metal film resistors.
- Optional ZPAX0 24dB per octave plug-in High Pass/Low Pass crossover module.
- Optional RDDP (Remote Diagnostic Display Port) for monitoring amplifier operation.

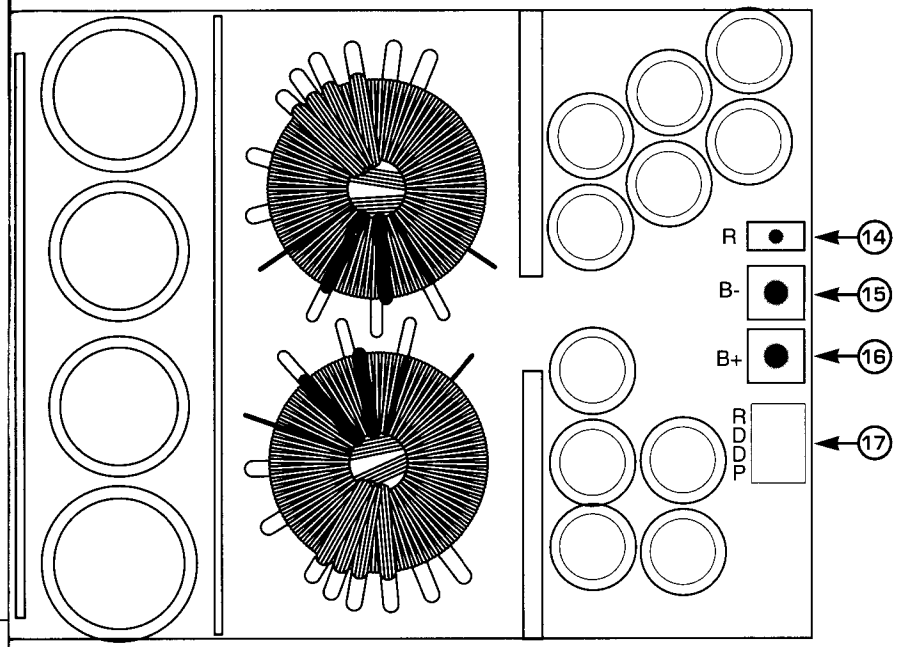
- Output Power per Channel (both channels driven)
  ZPA0.5
  - Into 4 or 1 ohm @ 12/13.8 VDC.....150/300 Wrms
  - Into 2 or .5 ohms @ 13.8 VDC.....500 Wrms
  - Bridged into 4 or 1 ohm @ 13.8 VDC.....1000 Wrms

  ZPA0.3
  - Into 4 or 1 ohm @ 12/13.8 VDC.....75/150 Wrms
  - Into 2 or .5 ohms @ 13.8 VDC.....250 Wrms
  - Bridged into 4 or 1 ohm @ 13.8 VDC.....500 Wrms
- Frequency Response .....±1 dB 20Hz to 20kHz
- Signal to Noise Ratio (20Hz to 20kHz) .....>110 dB
- Input Sensitivity.....1 volt to 8 volts
- Input Impedance .....10k ohms
- Input Voltage Range.....10 volts to 15.5 volts
- Average Current Draw at Idle.....8 amps
- Recommended Fuse Size ZPA0.3/ZPA0.5.....40/80 amps
- Dimensions of Chassis, ZPA0.3.....12.9"L x 13"W x 2.5"H
- Dimensions with Flanges, ZPA0.3.....13.9"L x 13"W x 2.5"H
- Dimensions of Chassis, ZPA0.5.....14.9"L x 13"W x 2.5"H
- Dimensions with Flanges, ZPA0.5.....15.9"L x 13"W x 2.5"H

Features and specifications are subject to change without notice.

FIGURE 1
CONTROLS AND FUNCTIONS





1. **Left Speaker Terminals:** These custom tooled connectors can accept up to 9 gauge cable. The left positive terminal is used as the positive output in bridged mono mode. Be careful to observe proper polarity when connecting cables.
2. **Right Speaker Terminals:** These custom tooled connectors can accept up to 9 gauge cable. The right negative terminal is used as the negative output in bridged mono mode. Be careful to observe proper polarity when connecting cables.
3. **Unbalanced RCA Input Jacks:** These inputs are for standard RCA interconnect cables from the head unit or a signal processor. These are not used if the balanced input jack is used. DO NOT use both inputs simultaneously.
4. **Balanced Input Jack:** This input is for a balanced signal cable from a Phoenix Gold signal processor with balanced output. Use this in place of unbalanced RCA inputs whenever possible. DO NOT use both inputs simultaneously.
5. **Plug-In Crossover Module Slot:** The optional ZPAXO Crossover Module plugs into this slot. The module provides a 24dB per octave, continuously variable (30Hz-600Hz), switchable High or Low pass signal for the amplifier. A Crossover Bypass Card is shipped with the amplifier that must remain installed if a ZPAXO crossover module is not used.
6. **Left Input Sensitivity Control:** This knob adjusts the left channel input sensitivity. Input sensitivity is variable from 1 volt to 8 volts. Turn full clockwise for 1 volt and full counterclockwise for 8 volts.

7. **Right Input Sensitivity Control:** This knob adjusts the right channel input sensitivity. Input sensitivity is variable from 1 volt to 8 volts. Turn full clockwise for 1 volt and full counterclockwise for 8 volts.
8. **Grounded/Floating Switch:** Used to select between a grounded or floating negative input signal. Set switch to the grounded position when using the unbalanced inputs and to the floating position when using the balanced input.
9. **Thermal LED Indicator (Yellow):** Turns on due to excessive heat buildup. This usually occurs from a lack of ventilation. Make sure that the intake and exhaust vents are not blocked. The amplifier will reset when the temperature falls to a safe operating level.
10. **Overload LED Indicator (Red):** Turns on if excessive current in the output stages is detected. This can be caused by any of the following:
    a. Any speaker cable shorted to the vehicle's chassis (grounded).
    b. Any pair of speaker cables shorted together (zero ohms).
    c. Shorted speaker voice coil (zero ohms).
    d. Combined speaker impedance is too low. Impedance should not be below 1 ohm mono or 1/2 ohm stereo.
11. **Power On LED Indicator (Green):** Turns on whenever the amplifier is on, indicating that the amplifier is receiving 12 volts at both the B+ and remote turn-on terminals.

12. **High Current LED Indicator (Yellow):** Illuminates to indicate the amplifier has switched into High Current mode. The amplifier switches into High Current mode only if sufficiently high current passes through the outputs. Once the amplifier switches into High Current mode, it will remain so until it is turned off and back on again. It is not possible to manually switch the amplifier into High Current mode.
13. **High Voltage LED Indicator (Green):** Illuminates to indicate the amplifier is in High Voltage mode. The amplifier will always turn on in High Voltage mode. This is done automatically. It is not possible to manually switch the amplifier into High Voltage mode.
14. **Remote Turn-On Terminal:** Connect to a switched 12 volt source such as the "remote out" or power antenna wire from the head unit. DO NOT connect this to the B+ input cable coming from the battery.
15. **B- Terminal (Chassis Ground):** Connect to a clean, solid chassis ground of the vehicle. A minimum of 4 gauge cable must be used. Make the cable as short as possible. DO NOT connect this directly to the negative battery terminal. We recommend you have the complete Power*Flow* system installed as shown in figure 2.
16. **B+ Terminal (Battery Positive):** Connect to the positive battery terminal. DO NOT CONNECT TO ANY FACTORY FUSE BOX. A minimum of 4 gauge cable must be used. Remember to properly fuse this cable within 18 inches of the positive battery terminal and within 18 inches of the amplifier. We recommend you have the complete Power*Flow* system installed as shown in figure 2.
17. **Remote Diagnostic Display Port (RDDP):** This terminal is for connecting the optional Remote Diagnostic Display.

PHOENIX GOLD NO LIMITS!

SYSTEM DESIGN

A successful installation must begin with proper planning. There are several things that must be considered before beginning the installation.

1. Inspect the vehicle's electrical system:
   The vehicle's battery and charging system must be in excellent condition before the amplifier is installed. If there is any doubt as to the condition of the electrical system, it should be inspected and repaired by a qualified technician.
2. Plan the mounting locations for all components:
   Deciding where each component will be installed is the only way to determine if custom work will be needed to install the system. A qualified custom installer should be utilized if custom work is required. Attempting to modify your vehicle without the proper tools and experience can lead to damaging the equipment or damaging the vehicle.
3. Plan all system cable routes:
   When choosing cable routes, make sure that no cable is allowed to interfere with the mechanical operation of the vehicle controls such as steering wheel, gas, brake, clutch pedal, trunk hinges, etc.
   a. Power cables: All power cables must be fused within 18 inches of the positive battery terminal. Do not route power cables near hot engine components such as exhaust manifolds. Power cables must be protected with grommets when they pass through any metal panels such as the firewall.
   b. Signal cables should be routed away from all other vehicle wiring and electrical components such as computers.
   c. Speaker cables should be Oxygen Free Copper (OFC) and at least 12 gauge for ZPA0.5 and ZPA0.3.

RECOMMENDED EXAMPLES

The following Power*Flow* and system diagrams are offered as examples of proper system design.

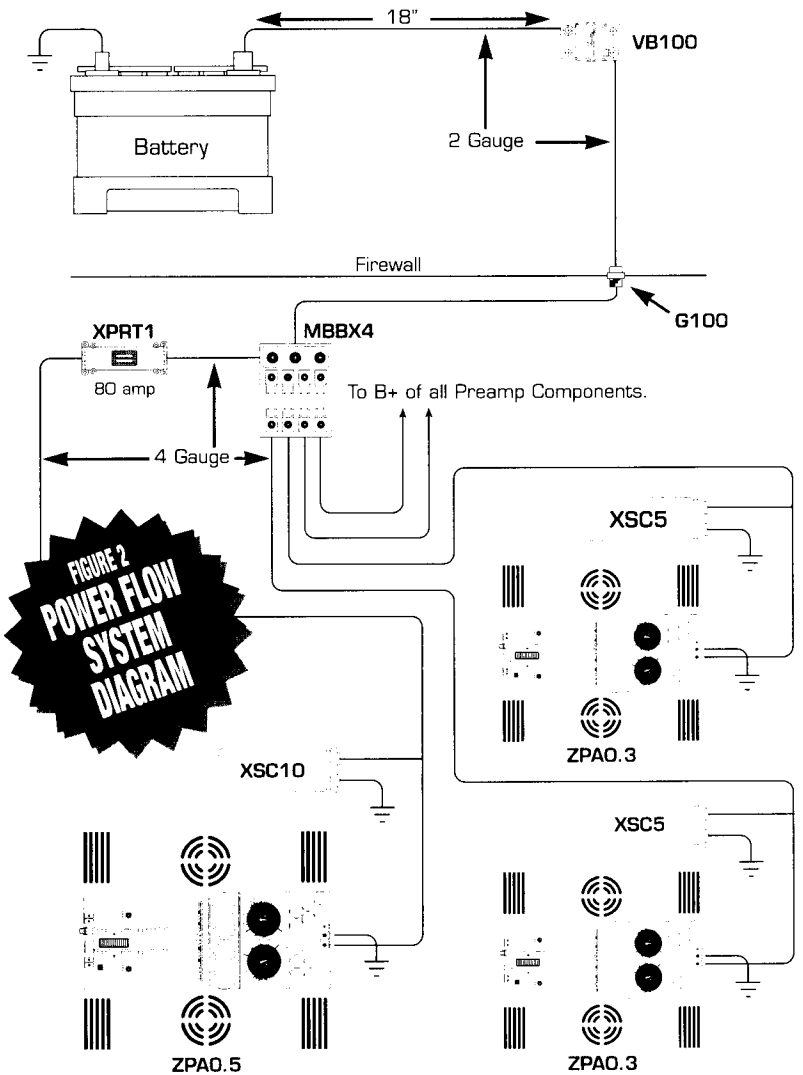
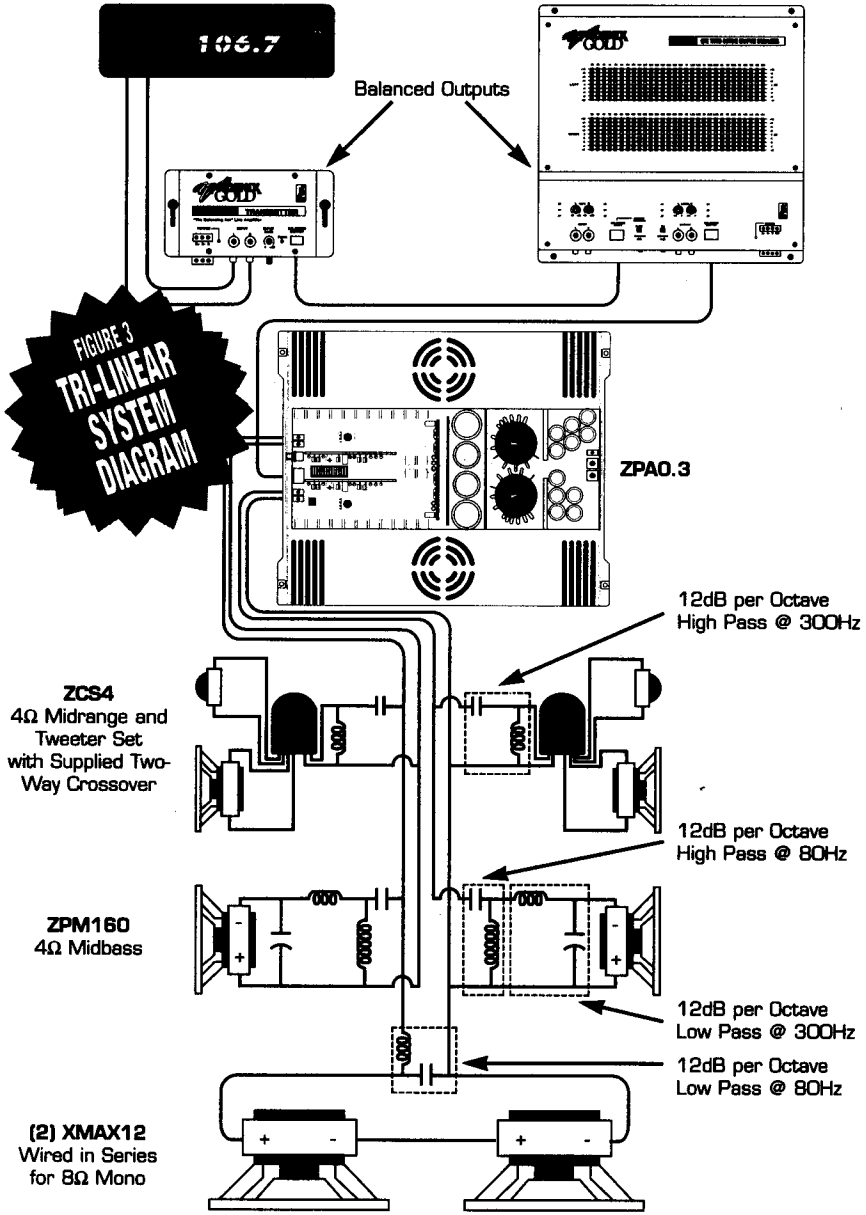
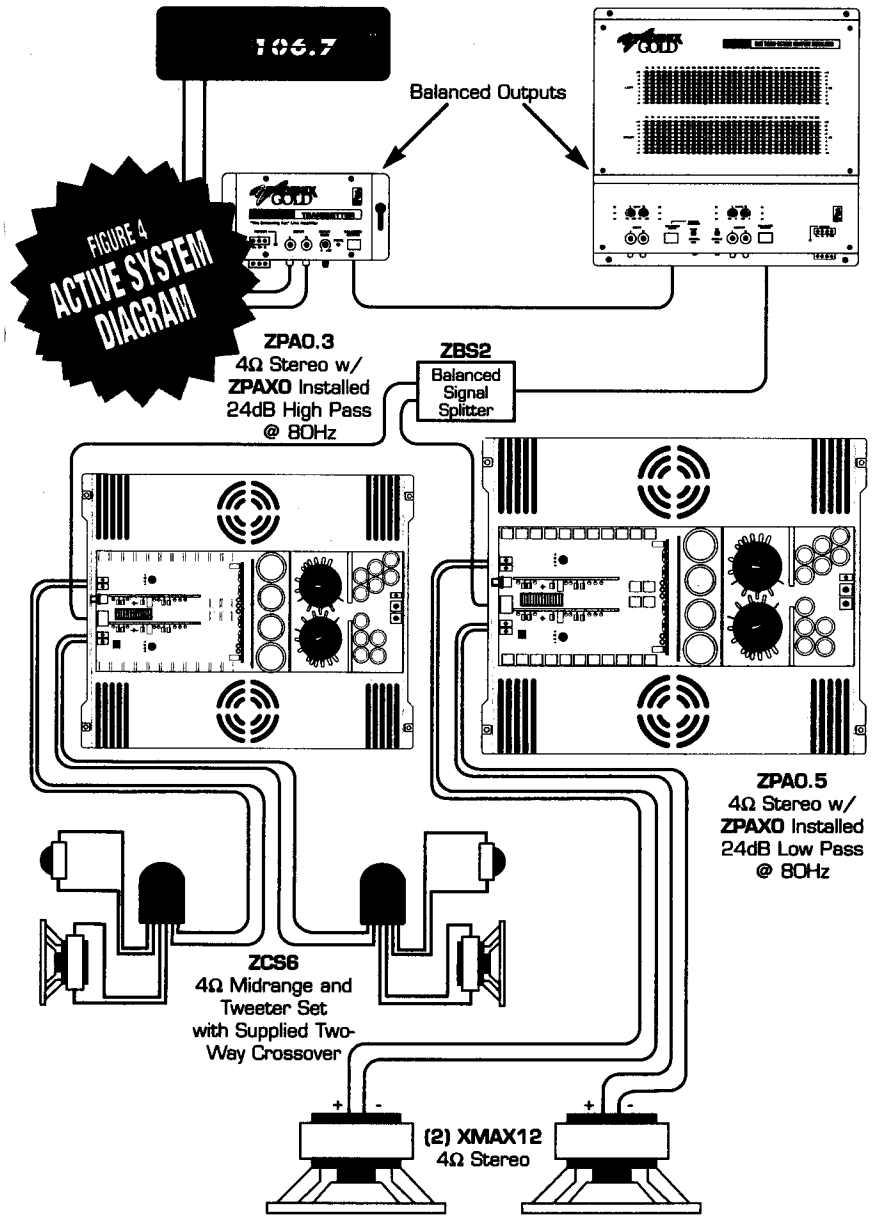
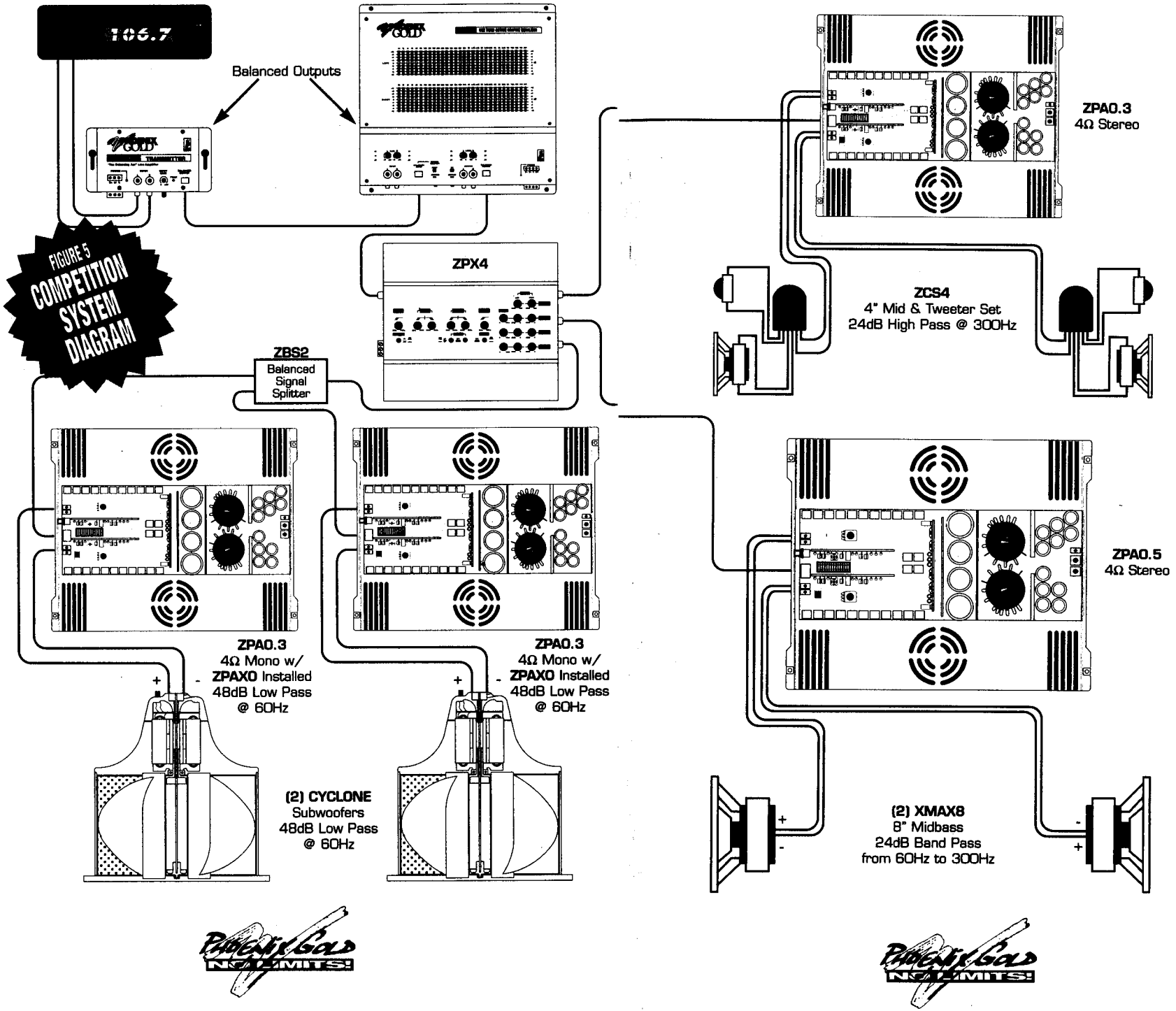


FIGURE 2
POWER FLOW SYSTEM DIAGRAM


106.7
Balanced Outputs
FIGURE 3
TRI-LINEAR SYSTEM DIAGRAM
ZPA0.3
12dB per Octave High Pass @ 300Hz
ZCS4
4Ω Midrange and Tweeter Set with Supplied Two-Way Crossover
12dB per Octave High Pass @ 80Hz
ZPM160
4Ω Midbass
12dB per Octave Low Pass @ 300Hz
12dB per Octave Low Pass @ 80Hz
(2) XMAX12
Wired in Series for 8Ω Mono


106.7
Balanced Outputs
FIGURE 4
ACTIVE SYSTEM DIAGRAM
ZPA0.3
4Ω Stereo w/ ZPAXO Installed
24dB High Pass @ 80Hz
ZBS2
Balanced Signal Splitter
ZPA0.5
4Ω Stereo w/ ZPAXO Installed
24dB Low Pass @ 80Hz
ZCS6
4Ω Midrange and Tweeter Set with Supplied Two-Way Crossover
(2) XMAX12
4Ω Stereo

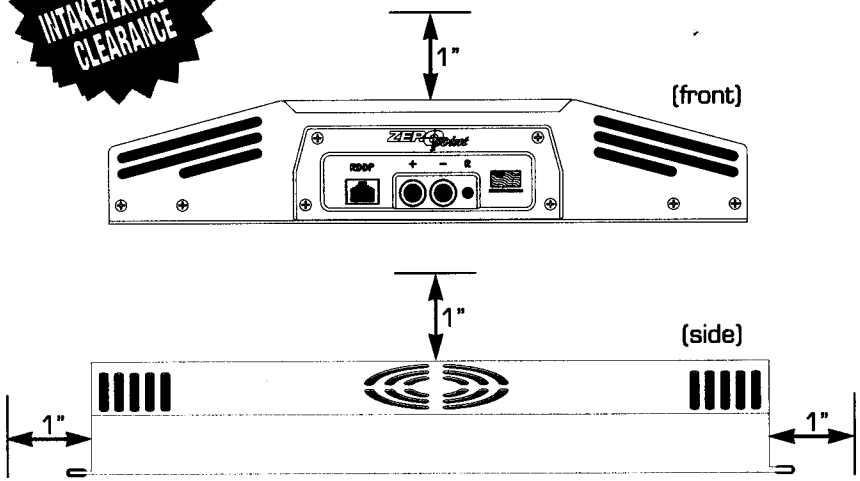

106.7
Balanced Outputs
FIGURE 5
COMPETITION SYSTEM DIAGRAM
ZPX4
ZBS2
Balanced Signal Splitter
ZPA0.3
4Ω Stereo
ZCS4
4" Mid & Tweeter Set
24dB High Pass @ 300Hz
ZPA0.3
4Ω Mono w/ ZPAXO Installed
48dB Low Pass @ 60Hz
ZPA0.3
4Ω Mono w/ ZPAXO Installed
48dB Low Pass @ 60Hz
ZPA0.5
4Ω Stereo
(2) CYCLONE
Subwoofers
48dB Low Pass @ 60Hz
(2) XMAX8
8" Midbass
24dB Band Pass from 60Hz to 300Hz

MOUNTING

The ZPAO.5 and ZPAO.3 can be mounted in a variety of positions. There are only a few precautions that must be observed.

1. Never mount the amplifier where it can get wet. Water damage is not covered by the limited warranty.
2. Do not mount the amplifier where debris can fall into the fan intake or exhaust vent holes. This can damage the fan and the electronics of the amplifier and is not covered by the limited warranty.
3. Make sure the amplifier has adequate ventilation. Mounting the amplifier inside an enclosure is not recommended unless the enclosure itself has ventilation fans to circulate fresh air through the enclosure. Leave at least one inch of clearance on the sides and top of the amplifier as shown in figure 6
4. Mount the amplifier to a flat surface with screws. Make sure the amplifier's base does not flex or distort.

FIGURE 6
MINIMUM INTAKE/EXHAUST CLEARANCE



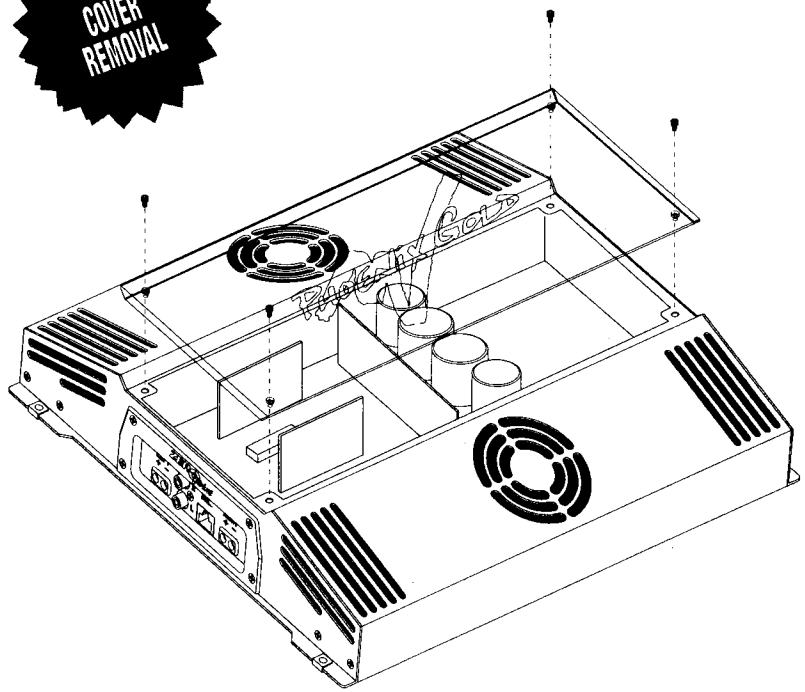
ELECTRICAL

DISCONNECT THE VEHICLE'S BATTERY GROUND WIRE BEFORE BEGINNING THE INSTALLATION

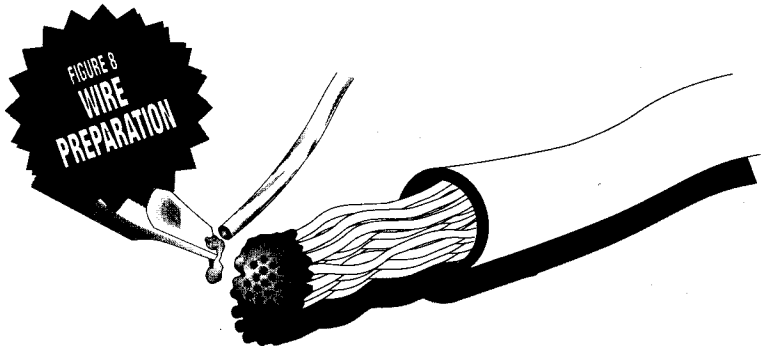
All cable terminal block set screws are accessed by removing the cover. Remove the four screws with a 7/64" hex wrench as shown in figure 7.

MAKE SURE THAT NO WIRE STRANDS FALL INTO THE AMPLIFIER. THIS CAN CAUSE PERMANENT DAMAGE AND IS NOT COVERED BY THE LIMITED WARRANTY.

FIGURE 7
COVER REMOVAL



Power and speaker cables should be connected directly to the appropriate terminal block. Strip 1/2" of insulation from the end of the wire and "tin" the tip with solder as shown in figure 8. This will prevent the wire strands from fraying and still provide for maximum contact area between the terminal block, set screw and bare copper cable.



Note: Tighten the speaker and remote terminal set screws with the supplied 2mm hex wrench. The 4mm hex wrench is used to tighten the B+ battery and B- ground terminals.

1. Connect the speaker cables to the left and right speaker terminals. Be careful to observe proper polarity when connecting cables.
2. Connect the remote turn on wire to the remote terminal.
3. a. Connect the balanced signal cable from a Phoenix Gold signal processor to the balanced input jack. Move the Grounded/Floating switch to "**Floating**".

- OR -

   b. Connect a pair of RCA interconnect cables from the head unit or a signal processor to the unbalanced RCA input jacks. Move the Grounded/Floating switch to "**Grounded**". Do not use both types of inputs simultaneously.
4. Connect the 4 gauge battery cable to the B+ terminal.
5. Connect the 4 gauge ground cable to the B- terminal.

1. Install all fuses and reconnect the battery ground cable.
2. Set the amplifier's input gain controls to minimum.
3. Set the head unit's tone, balance and fader controls to the center (flat) position.
4. Turn the head unit on with the volume set to minimum.
5. Visually check the amplifier. The green Power On LED and the green High Voltage LED should be lit.
6. Set the volume control of the head unit for maximum undistorted output (on most head units this will be approximately 7/8 of maximum). Use a very clean and dynamic recording.
7. Adjust the input gains and output levels of all preamp components for maximum undistorted output as per the manufacturer's instructions. Start with the first component after the headunit and work your way towards the amplifier.
8. Turn up the output level adjustment of the last signal processor before the amplifier until the speakers begin to distort. Turn the output level back down just enough to eliminate the distortion. If this adjustment cannot distort the speakers, then leave the output level at maximum and turn the amplifier input gain up until distortion is heard and back it off just enough to eliminate the distortion. Repeat this step for each amplifier in the system.
9. When all input gains and output levels are set correctly, the amplifier will reach maximum undistorted output at the volume level set in step 6.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Power On LED not on.	Main 12 volt power or ground cable not connected.	Connect the B+ terminal directly to the battery positive terminal with the proper gauge power cable and fusing. Connect the B- terminal to the vehicle's chassis with the same gauge cable used for the B+ connection.
	Blown main 12 volt fuse in the power cable.	Use a digital multi-meter set on continuity to test for a short to chassis ground in the main power cable. Ensure that the B+ and B- connections are not reversed. Replace fuses with the correct size fuse.
	Remote turn-on terminal not connected.	Connect the Remote Turn-On Terminal to a switched 12 volt source (Remote out lead of the headunit or the delayed remote output from a Phoenix Gold signal processor).
No output and Power On LED is on.	Balanced or unbalanced signal input not connected.	Connect the balanced or unbalanced signal cables from the signal output of a line driver, equalizer or crossover to the input jack of the amplifier.
	Speaker cables not connected.	Connect the proper gauge speaker wire to the speaker output terminals.
	Speaker voice coil is open.	Use a digital multi-meter set on resistance to test for an open voice coil on the speaker.
Overload LED turns on.	Shorted speaker cable.	Use a digital multi-meter set on continuity to test for a short to chassis ground in all speaker cables.
	Shorted speaker voice coil.	Use a digital multi-meter set to resistance and measure each set of speaker cables to ensure that the speaker's voice coil is not shorted internally (0 ohms).
	Load impedance too low.	Calculate the combined impedance of all drivers on each channel to ensure it is not below 1/2 ohm stereo or 1 ohm mono.
Thermal LED turns on.	Blocked internal fan intake or exhaust vents.	Remove any debris that may be blocking air flow into or out of the amplifier. There must be a minimum of one inch clearance around the amplifier and adequate ventilation for the area the amplifier is mounted in.

There are many advanced features incorporated into the Zeropoint amplifiers. One of the most misunderstood is the advanced power supply design.

The power supply incorporates a special sensing circuit that measures the amount of current passing through each output. If the combined speaker impedance is low enough, the resulting high output current will cause the sensing circuit to switch the power supply into High Current mode (this switching is inaudible). This lowers the rail voltage in the power supply and allows the amplifier to drive the lower impedance at a higher output current. The power output of the amplifier remains equal to the power output in High Voltage mode because power (watts) is equal to voltage multiplied by current. Once the amplifier has switched modes it will remain in High Current mode. The sensing circuit is reset by powering down the amplifier. The amplifier always turns on in High Voltage mode.

Limited Warranty

Phoenix Gold provides a limited warranty on all electronics (free of manufacturing defects in materials and/or workmanship) to the original consumer/purchaser for a period of eighteen (18) months when installed by an Authorized Phoenix Gold Mobile Electronics Retailer. Returning a copy of the original sales receipt with the warranty registration card extends the period to thirty-six (36) months labor with and (60) months parts. The limited warranty period is thirty (30) days if installed by anyone other than an Authorized Phoenix Gold Mobile Electronics Retailer. We will cover parts and labor provided the product was purchased from an Authorized Phoenix Gold Mobile Electronics Retailer. This warranty does not apply to any product where the tags and/or serial numbers have been cut, removed, tampered with or altered in any manner. This limited warranty is applicable to only the original consumer/purchaser and is not transferable. The warranty does not cover damage caused by debris inside the amplifier. Electronics that are deemed defective during the warranty period will be repaired or replaced at the discretion of Phoenix Gold. Repaired or replaced product will be covered until the original warranty period expires. Phoenix Gold will not be responsible for any incidental or consequential damages that may result from a defect in the product. Select states may not allow the exclusion or limitation of incidental or consequential damages, so the prior limitations may not apply.

Notes

Dealer's Name _____

Telephone Number _____

Sales Person's Name _____

Model Number _____

Serial Number _____