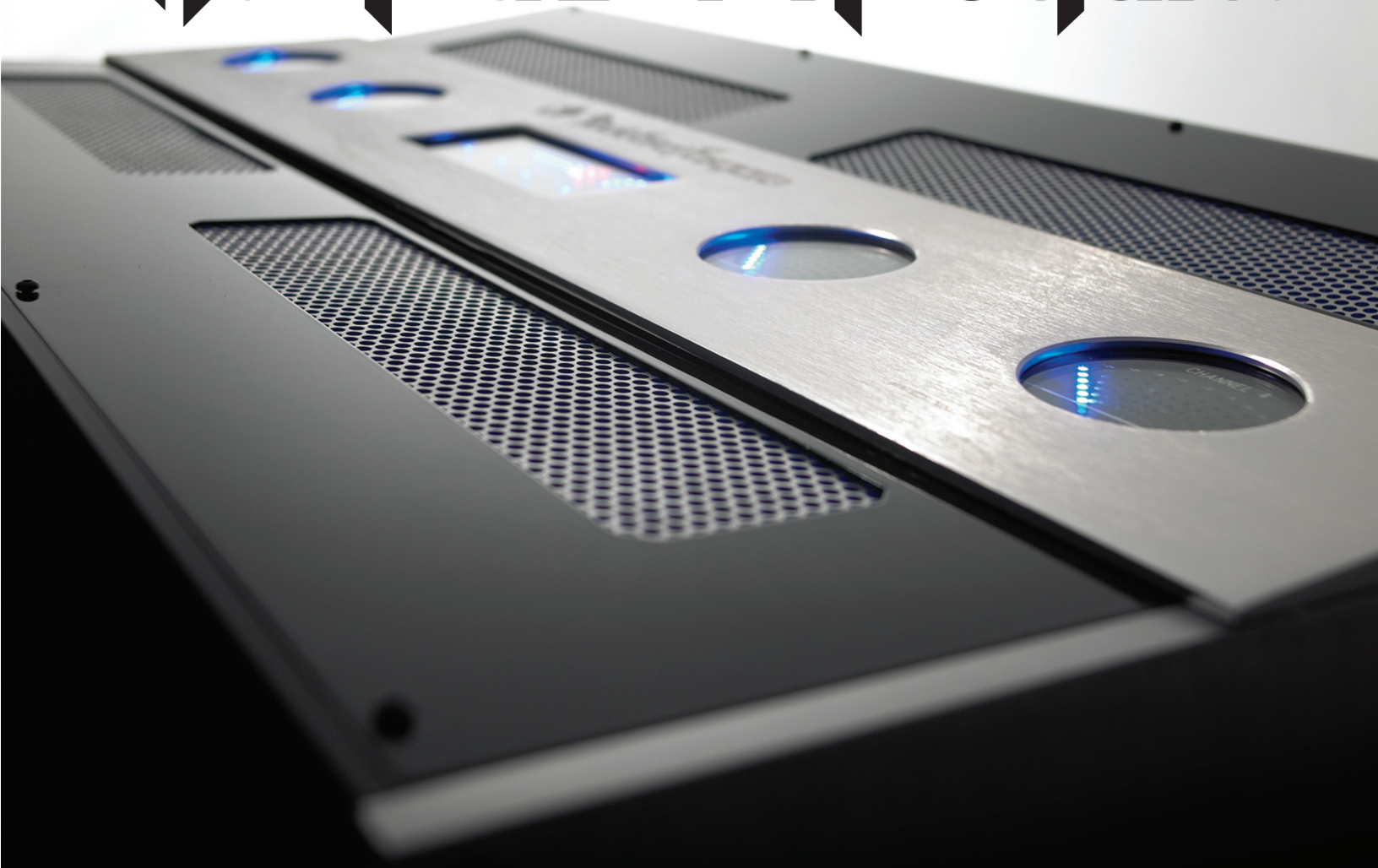
Rockford Fosgate®



POWER™

T15kW

Amplifier

A message from the design engineer:

Dear Fanatic:

Congratulations on your decision to purchase the most powerful and advanced mobile audio amplifier available today. With proper setup and care it should bring you enjoyment for many years to come. I hope you enjoy it and the way it reproduces music as much as I have enjoyed creating for you. Like many new technologies, this amplifier has received praise from some and skepticism from others, one thing is for certain: This amplifier needs to be heard to be believed. Sit down, hang on and LISTEN.

Sincerely, Anthony D'Amore

Dear Customer,

Congratulations on your purchase of the world's finest brand of car audio amplifiers. At Rockford Fosgate we are fanatics about musical reproduction at its best, and we are pleased you chose our product. Through years of engineering expertise, hand craftsmanship and critical testing procedures, we have created a wide range of products that reproduce music with all the clarity and richness you deserve.

For maximum performance we recommend you have your new Rockford Fosgate product installed by an Authorized Rockford Fosgate Dealer, as we provide specialized training through Rockford Technical Training Institute (RTTI). Please read your warranty and retain your receipt and original carton for possible future use.

Great product and competent installations are only a piece of the puzzle when it comes to your system. Make sure that your installer is using 100% authentic installation accessories from Connecting Punch in your installation. Connecting Punch has everything from RCA cables and speaker wire to Power line and battery connectors. Insist on it! After all, your new system deserves nothing but the best.

To get a free brochure on Rockford Fosgate products and Rockford accessories, visit our web site at: www.rockfordfosgate.com or, in the U.S. call 1-800-669-9899 or FAX 1-800-398-3985. For all other countries, call +001-480-967-3565 or FAX +001-480-967-8132.

If, after reading your manual, you still have questions regarding this product, we recommend that you see your Rockford Fosgate dealer. If you need further assistance, you can call us direct at 1-800-669-9899. Be sure to have your serial number, model number and date of purchase available when you call.

The serial number can be found on the outside of the box. Please record it in the space provided below as your permanent record. This will serve as verification of your factory warranty and may become useful in recovering your unit if it is ever stolen.

Serial Number: _____

Model Number: **POWER T15kW**

GETTING STARTED

Welcome to Rockford Fosgate! This manual is designed to provide information for the owner, salesperson and installer. For those of you who want quick information on how to install this product, please turn to the ***Installation Section*** of this manual. Other information can be located by using the Table of Contents. We, at Rockford Fosgate, have worked very hard to make sure all the information in this manual is current. But, as we are constantly finding new ways to improve our product, this information is subject to change without notice.

TABLE OF CONTENTS

PRACTICE SAFE SOUND™

Continuous exposure to sound pressure levels over 100dB may cause permanent hearing loss. High powered auto sound systems may produce sound pressure levels well over 130dB. Use common sense and practice safe sound.

You know with an amplifier like this there must be some warning involved. With power, there comes responsibility. So be responsible for the safe installation and use of this amplifier. If you can't be responsible, your parents just may take this amp from you, and who knows what they would do with it.

*We **strongly** suggest you have this amplifier installed by an Authorized Rockford Fosgate Dealer for your safety and ease of mind.*

⚠WARNING This symbol with "**WARNING**" is intended to alert the user to the presence of important instructions. Failure to heed the instructions will result in severe injury or death.

⚠CAUTION This symbol with "**CAUTION**" is intended to alert the user to the presence of important instructions. Failure to heed the instructions can result in injury or unit damage.

⚠ **WARNING**: **RISK OF ELECTRIC SHOCK.** Use extreme caution when handling or making speaker connections. The voltage at the speaker terminals can cause injury or death. Read and understand the instructions in this manual before making any connections.

⚠ **CAUTION**: This amplifier weighs in excess of 195 lbs (88.4 kg). To prevent injury and/or damage to the unit, do not lift, move, or reposition the unit without assistance.

⚠ **CAUTION**: To prevent injury and damage to the unit, please read and follow the instructions in this manual. We want you to enjoy this system, not get a headache.

⚠ **CAUTION** If you feel unsure about installing this system yourself, have it installed by a qualified Rockford Fosgate technician.

⚠ **CAUTION** Before installation, disconnect the battery negative (-) terminal to prevent damage to the unit, fire and/or possible injury.

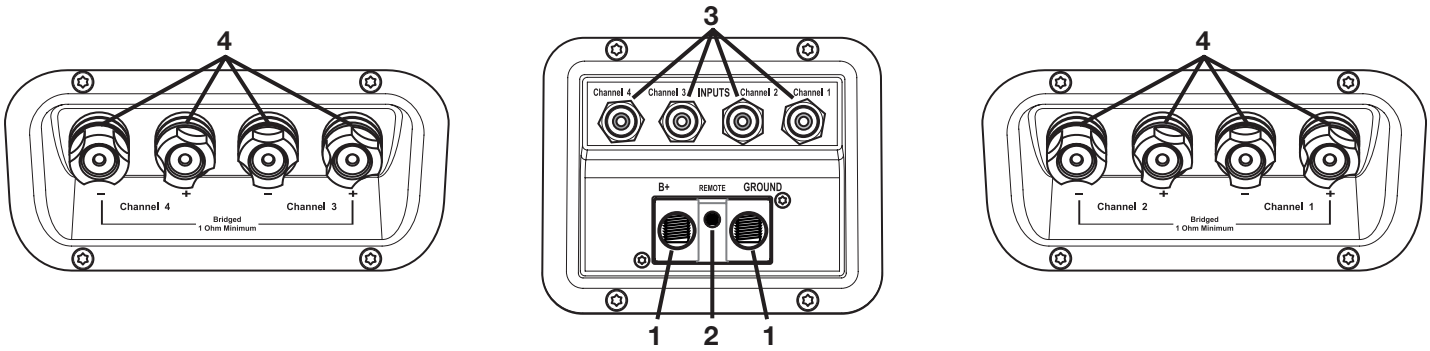
CONTENTS OF CARTON

A Power T15kW 4-Channel Amplifier
Installation & Operation Manual
2 Mounting Brackets
Mounting Hardware Kit

Visit our web site for the latest information on all Rockford products.

www.rockfordfosgate.com

Back Panel — RCA Inputs, Power Connection and Speaker Outputs



Back Panel – RCA Inputs, Power Connection and Speaker Outputs

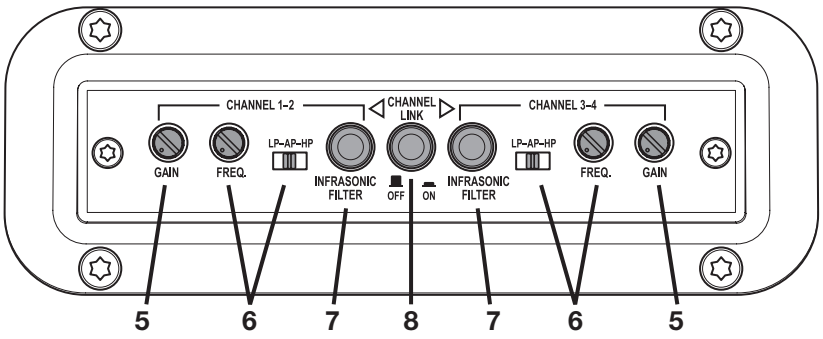
1. **Power Terminals** – The power and ground connectors on the amplifier are platinum-plated and will accommodate up to 1/0 AWG wire, maximizing the input current capability of the amplifier.
2. **REMOTE Terminal** – This heavy duty, platinum-plated wire connector will accept wire sizes from 12 AWG to 24 AWG. This terminal is used to remotely turn-on and turn-off the amplifier when +12V DC is applied.
3. **RCA Input Jacks** – The industry standard RCA jacks provide an easy connection for signal level input. They are platinum-plated to resist the signal degradation caused by corrosion.
4. **Speaker Terminals** – These high current binding posts (**+** and **-**) will accept wire sizes up to 4 AWG.

Front Panel – Controls

5. **Gain Control** – The input gain control is preset to match the output of most source units. It can be adjusted to match output levels from a variety of source units. Setting displayed at item 16 on the top panel status board.
6. **Variable Crossover** – Is a built-in 12dB/octave Butterworth filter selectable for Low-Pass (LP), All Pass (AP), or High-Pass (HP) operation variable from 32Hz to 300Hz. Setting displayed at item 17 on the top panel status board.
7. **Infrasonic Filter Button Switch** – Pressing this switch in, switches on a 24dB/octave infrasonic filter designed to prevent frequencies below the audio range from being applied to the subwoofer from the amplifier. Consequently improving subwoofer performance and power handling, particularly in vented enclosures.
8. **Channel Link Button Switch** – Pressing this switch in, switches the inputs to a 2-channel mode, allowing connection to only the Channel-1 and Channel-2 inputs with a full 4-channel output. Setting displayed at item 15 on the top panel status board.

NOTE: When the Channel Link Button Switch is engaged, only the Channel 1-2 controls will function and the gain and frequency displays on the top panel status board for channels 3 and 4 will turn off.

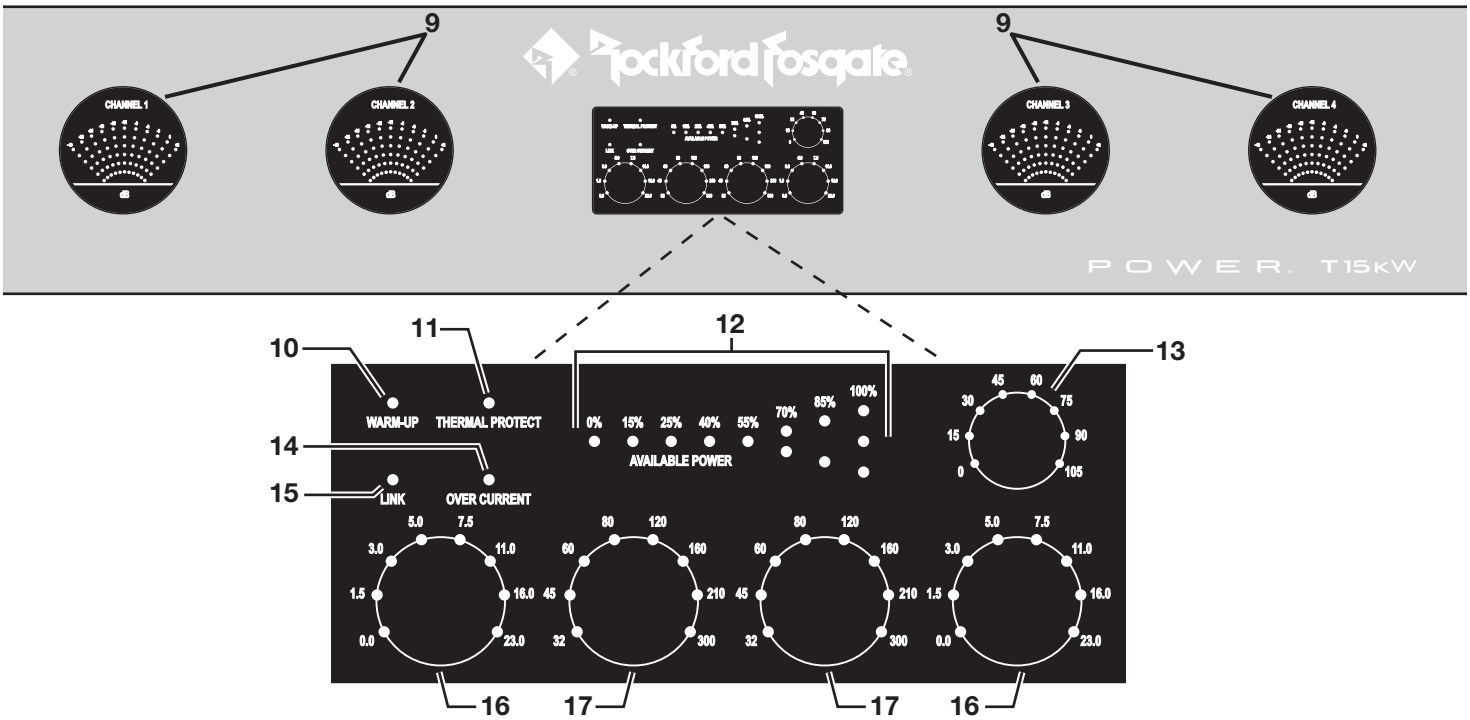
Front Panel – Controls



Top Panel – Status Boards

9. **Output Display** – These LED needle simulation displays show the real-time output of the amplifier from - ∞ (infinity) to +2dB. During normal operation the indicator should not reach +2dB, as this indicates clipping.
10. **Warm-Up** – This LED will be on while the unit warms up when it is first turned on. Depending on the available power, the unit may take up to a minute to warm up.
11. **Thermal Protect** – This LED comes on if the amplifier reaches the third stage of thermal protection. The amplifier will shut down to cool if this occurs.

Top Panel — Status Boards



12. **Available Power** – These LEDs show the reserve energy of the hybrid system available for output power.

NOTE: If the available power display constantly reads below 70%, check the supply power system or reduce the amount of load connected to the amplifier.

13. **Temperature °C** – These LEDs display the internal temperature of the MOSFETS.

14. **Over Current** – This LED comes on if there is a short in the speaker wiring, damage to speakers, or the connected load is bellow 0.5-ohm stereo and 1-ohm bridged. The audio will also mute if this occurs.

15. **Link** – This LED will show if the Channel Link has been turned on. if on, only the Channel 1-2 controls will function and the gain and frequency displays for channels 3 and 4 will turn off.

16. **Gain dB** – These LEDs show the gain setting on the front panel controls 0.0 to 23.0 dB.

17. **Frequency Hz** – These LEDs show the crossover frequency setting on the front panel controls 32Hz to 300Hz.

Special Design Features

- Patent pending Hybrid Technology power supply design
- Dual oversized toroidial transformers
- 16 High Current TO-247 Power MOSFETs in power supply section
- 80 Precision Matched TO-3P High Current MOSFETs in output section
- Power Supply switching rate 33,000 times per second
- 94,000 micro-Farads of power supply filter capacitance
- One hundred and eighty 400 Farad ultracapacitors in power supply's Hybrid system
- Active and Passive capacitor balancing circuitry
- Reserve Energy of over 200,000 Joules
- Forced air thermostatically controlled fan cooling system
- 375 Amps maximum current draw
- Large Extruded Aluminum Internal Heatsinks for cooling of MOSFET devices
- Separate PCBs for; Preamplifier, Amplifiers, and Power Supply for low noise operation
- 1% tolerance resistors and high quality film capacitors in audio signal path

Hybrid Technology

By Anthony D'Amore - Rockford Design Engineer

Some people have referred to Ohm's Law (circa 1827) and immediately say this amplifier is impossible. Ohm's Law has been correct for 179 years and I'm sure it will remain correct for many years to come. This technology is in no way breaking Ohm's Law.

The real law that we need to talk about is the 1st law of thermal dynamics or Conservation of Energy. This law states that energy cannot be created nor destroyed; additionally you can only get the same amount of energy out of a system as the amount of energy that was put in. This is true for every amplifier including the T15kW.

A quick review of what "Efficiency" means, as I will refer to it later. Efficiency = (Power Out / Power In). Let us take a typical class A/B amplifier for example. Say it puts out 200 Watts RMS and it takes in 300 Watts to do this. Efficiency = 200/300 = 0.67 or 67%. How do we know how much power it took in? This is where Ohm's Law is helpful. We knew it took in 23.8 amps to do this at 12.6 Volts. 23.8A * 12.6V = 300W.

Conservation of Energy DOES NOT say "Power In = Power Out". It says "ENERGY IN = ENERGY OUT". What's the difference? "Power" alone, tells us nothing about length of time, "Energy" does, "Energy" = Power * Time. When you get your electric bill in the mail they don't charge you for how much "Power" you used, they charge you for how much "Energy" you used, hence the unit "Kilowatt * Hours". A Kilowatt Hour is a LOT of energy and I doubt we will ever see the unit used in mobile audio. When referring to the T15kW though we could use the unit Kilowatt * Second, meaning 1 kilowatt for 1 second. However there is already a unit of measure for energy that is commonly used in the audio world; it is the Joule. A Joule is to energy like the Gallon is to water. It is a quantity of Energy and is defined as 1 Watt second or 1 watt for 1 second. Ok, I know that is a bunch of info, but to really understand the topic it is necessary.

I suppose we should talk about storing energy now, as in a capacitor. The formula for how much energy a capacitor can store is, ($^1/_2$* C*V^2). Which reads $^1/_2$ times the capacitance (in Farads) times the voltage squared. As an example let's find out how much energy is stored in a 1 Farad capacitor that is connected to the +12V system. ($^1/_2$ * 1 Farad * 12 * 12) = 72 Joules or 72 Watt seconds. If you are still with me, now we have the knowledge to discuss the operation of the T15kW and its Hybrid Technology (HT).

You cannot put out more power than you take in, or can you? The answer is YES YOU CAN, for periods of time. The HT system in the T15kW stores a huge amount of energy, well into six figures of Joules. It is capable of this by using the latest technology in capacitors designed for use in Hybrid Vehicles and large wind turbine electricity generators. The operation of the system is somewhat analogous to the operation of a Hybrid Vehicle. During some conditions a Hybrid car is running on just electric power, other conditions it runs on just gasoline power and under 'full throttle' conditions uses both systems. The T15kW has 2 systems in a way. It has the high voltage system, which is stored in the amplifier, and it has the 12 Volt system from the vehicle. When the T15kW's output power is low it uses power from the high voltage system to run the amplifier and small amounts of energy from the 12 Volt system to charge the high voltage system. When output power is relatively high it uses the high voltage system along with some energy from the 12 Volt system. When it is at 'full throttle' it uses both systems to their capacity, pun intended, to supply the output devices with the maximum amount of current possible.

So how can this work and why doesn't it just 'run out' of energy? The key is that music is very dynamic, meaning it has 'loud' times, like a kick drum, and relatively 'quiet' times, like…well like anything that is not loud. During the 'loud' times the system releases energy, for instantaneous efficiency of well over 300%, and during 'quiet' times it absorbs energy, the instantaneous efficiency at this point could be as low as 0%. Hybrid Technology is an energy management system. The "average" efficiency is still similar to other amplifiers. BUT you must read the last two paragraphs to understand the big picture. The system in this amplifier was designed so that it could play typical music continuously at 15 kilowatt levels. After all, this is an AUDIO amplifier we are talking about and audio amplifiers were intended to play music. With the Hybrid Technology system inside, the T15kW plays music like no other amplifier before it.

The question has been asked, "What about a sine wave, like for an SPL competitor"? The T15kW has plenty of energy to get through a 3 second sine wave burst. However a 5 minute "death match" style competition is not the T15kW's forte. Who wants to torture their investment like that anyhow?

So why would I design such a system? First of all this amplifier will make your ears smile when you hear it. Or you'll be smiling from ear to ear, one of the two. Secondly it has the ability to deliver incredible amounts of dynamic power. But maybe more importantly, when getting into the multi-kilowatt range the power delivery from the 12V system becomes more and more inefficient. The Hybrid Technology system in the T15kW provides current averaging to help this efficiency problem. Let's talk about why current averaging is useful.

This technology reduces I^2*R losses. I am referring to Ohm's Law by saying that current squared times resistance = power, and in this case power lost. Let us take a case with any typical amplifier playing music or a sine wave burst for a period of time where half of the time is 'loud' and half is 'quiet', just to simplify the situation. Let us also pretend that during the 'loud' times the amplifier draws 1000 amps and during the quiet times it draws 0 amps. Let's assume for a moment that during a 'loud' time, 1000 amps of current are being pulled on a 12 volt system through a 10 foot run of 1/0 AWG cable. Standard resistance for this length of 1/0 AWG cable is about 0.0012 ohms. Using the formula above for power lost 1000 amps * 1000 amps * 0.0012 ohms = 1200 Watts!!! So during this 'loud' time 1200 watts of power is being lost on that cable alone, and of course during the 'quiet' time 0 watts of power is being lost since the current being drawn at that time is zero. Ok, with that said, half the time 1200 watts are being lost and half the time 0 watts are being lost, for an average loss of 600 watts.

Now let us take that same example with HT's ability to current average for the same period of time. So instead of drawing 1000 amps when loud and 0 amps when quiet, it draws 500 amps continuously. If we put that number into the formula for power (loss) we will see something interesting. 500 amps * 500 amps * 0.0012 ohms = 300 watts loss in the cable. The I^2*R losses are cut IN HALF!! So while the "average" efficiency of the T15kW amplifier itself may be similar to other amplifiers it makes the entire system from battery to amplifier outputs much more efficient.

INSTALLATION CONSIDERATIONS

*Due to the weight and size of this amplifier, and for your safety and ease of mind, we **strongly** suggest you have this amplifier installed by an Authorized Rockford Fosgate Dealer.*

The following is a list of tools needed for installation:

- Volt/Ohm Meter
- Wire strippers
- Wire crimpers
- Wire cutters
- Assorted Allen Wrenches
- #2 Phillips screwdriver
- Battery post wrench
- Hand held drill w/assorted bits
- 1/8" diameter heatshrink tubing
- Assorted connectors
- Adequate Length—Red Power Wire (1/0 AWG required)
- Adequate Length—Black Grounding Wire (1/0 AWG required)
- Adequate Length—Remote Turn-on Wire

This section focuses on some of the vehicle considerations for installing your new amplifier. Pre-planning your system layout and best wiring routes will save installation time. When deciding on the layout of your new system, be sure that each component will be easily accessible for making adjustments.

CAUTION: If you feel unsure about installing this system yourself, have it installed by a qualified technician.

CAUTION: This amplifier weighs in excess of 195 lbs (88.4 kg). To prevent injury and/or damage to the unit, do not lift, move, or reposition the unit without assistance.

CAUTION: Before installation, disconnect the battery negative (-) terminal to prevent damage to the unit, fire and/or possible injury.

Before beginning any installation, follow these simple rules:

1. Be sure to carefully read and understand the instructions before attempting to install the unit.
2. For safety, disconnect the negative lead from the battery(s) prior to beginning the installation.
3. For easier assembly, we suggest you run all wires prior to mounting your unit in place.
4. Route all of the RCA cables close together and away from any high current wires.
5. Use high quality connectors for a reliable installation and to minimize signal or power loss.
6. Think before you drill! Be careful not to cut or drill into gas tanks, fuel lines, brake or hydraulic lines, vacuum lines or electrical wiring when working on any vehicle.
7. Never run wires underneath the vehicle. Running the wires inside the vehicle provides the best protection.
8. Avoid running wires over or through sharp edges. Use rubber or plastic grommets to protect any wires routed through metal, especially the firewall.
9. ALWAYS protect the battery and electrical system from damage with proper fusing. Install the appropriate fuse holder and fuse on the +12V power wire within 18" (45.7 cm) of the battery terminal.
10. When grounding to the chassis of the vehicle, scrape all paint from the metal to ensure a good, clean ground connection. Grounding connections should be as short as possible and always be connected to metal that is welded to the main body, or chassis, of the vehicle.

MOUNTING LOCATIONS

Engine Compartment

Never mount this unit in the engine compartment. Mounting the unit in the engine compartment will void your warranty.

Trunk Mounting

Due to the forced air thermostatically controlled fan cooling system, this amplifier can be mounted to suit your personal preference. Just ensure adequate ventilation at the back, front and top of the amplifier for air flow (3" minimum).

Passenger Compartment Mounting

If you have enough room, mounting the amplifier in the passenger compartment will work as long as you provide a sufficient amount of air for the amplifier to cool itself. Just ensure adequate ventilation at the back, front and top of the amplifier for air flow (3" minimum).

BATTERY AND CHARGING

This amplifier will draw a maximum of 350 - 375 Amps of current. Therefore for 'street' it is recommended to use a minimum of 2 additional batteries, as well as a high output alternator. These requirements do not change for competition use, as the amplifier will deliver the same amount of burst output power as long as the battery voltage is maintained between 11.0V and 15.5V. Running excessive battery voltage for a competition vehicle is pointless with the T15kW.

WIRING THE SYSTEM

CAUTION: If you do not feel comfortable with wiring your new unit, please see your local Authorized Rockford Fosgate Dealer for installation.

CAUTION: Before installation, disconnect the battery negative (-) terminal to prevent damage to the unit, fire and/or possible injury.

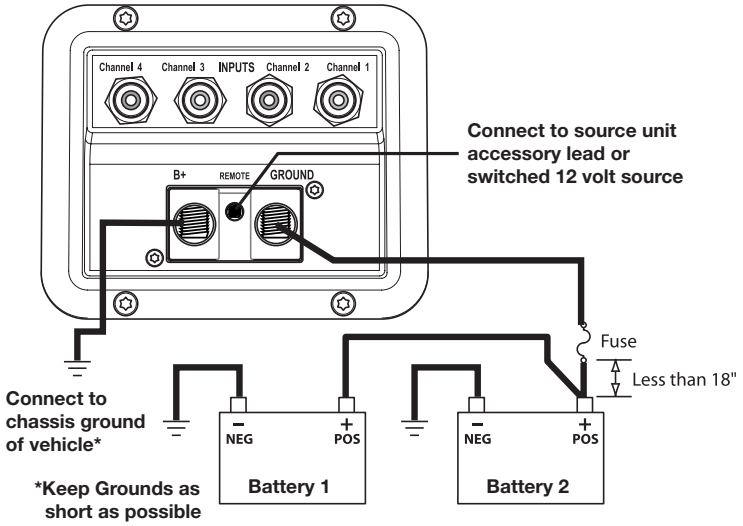
CAUTION: Avoid running power wires near the low level input cables, antenna, power leads, sensitive equipment or harnesses. The power wires carry substantial current and could induce noise into the audio system.

NOTE: 1/0 AWG wire for power and ground connections is required.

1. Plan the wire routing. Keep RCA cables close together but isolated from the amplifier's power cables and any high power auto accessories, especially electric motors. This is done to prevent coupling the noise from radiated electrical fields into the audio signal. When feeding the wires through the firewall or any metal barrier, protect them with plastic or rubber grommets to prevent short circuits. Leave the wires long at this point to adjust for a precise fit at a later time.
2. Prepare the RED wire (power cable) for attachment to the amplifier by stripping 5/8" of insulation from the end of the wire. Insert the bared wire into the B+ terminal and tighten the set screw to secure the cable in place.

NOTE: The B+ cable MUST be fused 18" or less from the vehicle's battery. Install the fuseholder under the hood and ensure connections are water tight.

3. Trim the RED wire (power cable) within 18" of the battery and splice in a inline fuse holder. See Specifications for the rating of the fuse to be used. **DO NOT install the fuse at this time.**
4. Strip 1/2" from the battery end of the power cable and crimp a large ring terminal to the cable. Use the ring terminal to connect to the battery positive terminal.



5. Prepare the BLACK wire (Ground cable) for attachment to the amplifier by stripping 5/8" of insulation from the end of the wire. Insert the bare wire into the GROUND terminal and tighten the set screw to secure the cable in place. Prepare the chassis ground by scraping any paint from the metal surface and thoroughly clean the area of all dirt and grease. Strip the other end of the wire and attach a ring connector. Fasten the cable to the chassis using a non-anodized screw and a star washer.

NOTE: Keep the length of the BLACK wire (Ground) as short as possible. Always less than 30"(76.2cm).

6. Prepare the Remote turn-on wire for for attachment to the amplifier by stripping 5/8" of insulation from the end of the wire. Insert the bared wire into the REMOTE terminal and tighten the set screw to secure the wire in place. Connect the other end of the Remote wire to a switched 12 volt positive source. The switched voltage is usually taken from the source unit's remote amp on lead. If the source unit does not have this output available, the recommended solution is to wire a mechanical switch in line with a 12 volt source to activate the amplifier.
7. Use the mounting brackets and hardware supplied and securely mount the amplifier to the vehicle. DO NOT mount the amplifier on cardboard or plastic panels. The place where you mount must be able to handle the weight of the amplifier through vibration, bumps or sudden vehicle stops.
8. Connect from source signal by plugging the RCA cables into the input jacks at the amplifier.

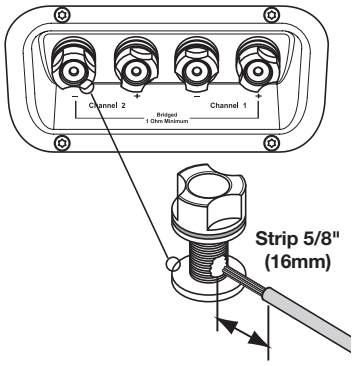
CAUTION: Always ensure power is off or disconnected at the amplifier before connecting RCA cables. Failure to do so may cause injury, damage to the amplifier and/or connected components.

9. Connect the speakers. Strip the speaker wires 5/8" and insert into the speaker terminal and tighten the binding nut to secure into place. Be sure to maintain proper speaker polarity. DO NOT chassis ground any of the speaker leads as unstable operation may result.

   Use the following chart for the recommended wire size for the load connected.

SPEAKER WIRE SIZE CHART

Stereo Load	Bridged Load	Wire Size
8Ω	16Ω	14 AWG
4Ω	8Ω	12 AWG
2Ω	4Ω	10 AWG
1Ω	2Ω	8 AWG
0.5Ω	1Ω	4 AWG



WARNING: **RISK OF ELECTRIC SHOCK.** Use extreme caution when handling or making speaker connections. The voltage at the speaker terminals can cause injury or death. Always ensure the amplifier is off or disconnected from power prior to making any type of speaker connection.

10. Perform a final check of the completed system wiring to ensure that all connections are accurate. Check all power and ground connections for frayed wires and loose connections which could cause problems. Install inline fuse near battery connection.

NOTE: Follow the diagrams for proper signal polarity.

CAUTION: This amplifier is not recommended for impedance loads below 0.5 ohm stereo and 1 ohm bridged.

'Selectable Power Output'

The T15kW develops more power as the load on the amplifier is increased, (i.e. it puts out 500 Watts per channel at 4 ohms stereo, 1000 Watts per channel at 2 ohms stereo, 2000 Watts per channel at 1 ohm stereo, etc). This way the user can effectively 'select' how much power they want the amplifier to provide by selecting the correct speaker load. In this way the amplifier can grow with the system rather than needing to replace the amplifier with a bigger one when the system grows.

In a typical 'street' vehicle it may be difficult to physically fit enough speakers in the vehicle to handle the full output power of the T15kW. This is one of the reasons behind making this amplifier a 4-channel amplifier. This way, channels 1 and 2 can be used for all of the mid and high frequency speakers, and channels 3 and 4 can be used to drive all of the subwoofers. Even in this configuration it may be difficult to physically fit enough speakers and/or subwoofers in the vehicle to handle the full output power. This is where the 'Selectable Power Output' comes into play.

NOTE: If the available power display constantly reads below 70%, check the supply power system or reduce the amount of load connected to the amplifier.

To determine how much power (watts) the amplifier will develop per channel, the following formulae can be used.

For Stereo: Divide 2000 by the ohm load per channel.

For Bridged: Divide 8000 by the ohm load per channel.

Example: On the following pages in Example 3, the load on channels 1 and 2 is 1 ohm stereo. **2000 ÷ 1 = 2000 Watts** per channel.

The load on the bridged channels 3 and 4 is 1.5 ohms. **8000 ÷1.5 = 5333 Watts**.

Minimum recommended impedance for 'street' use: 1-ohm stereo (2-ohms bridged)

These loads will provide the best sound quality, coolest amplifier temperatures, and a lighter load on the vehicle's electrical system.

Absolute minimum impedance for 'competition' use: 0.5-ohm stereo (1-ohm bridged).

These loads will provide the maximum output power, with burst power well over 15,000 Watts RMS without clipping and over 20,000 Watts RMS when clipped. The use of 4 AWG speaker wire is recommended when running at these impedance.

Example System Configurations

Here are some examples of 'street' setups utilizing the Selectable Power Output operation.

Example 1:

Two sets of 4-ohm component speakers in series on channels 1 and 2. One dual voice coil 4-ohm subwoofer with coils in series to channels 3 and 4 bridged. This provides the amplifier with 8-ohm stereo loads on channels 1 and 2 and a 8-ohm bridged load on channels 3 and 4.

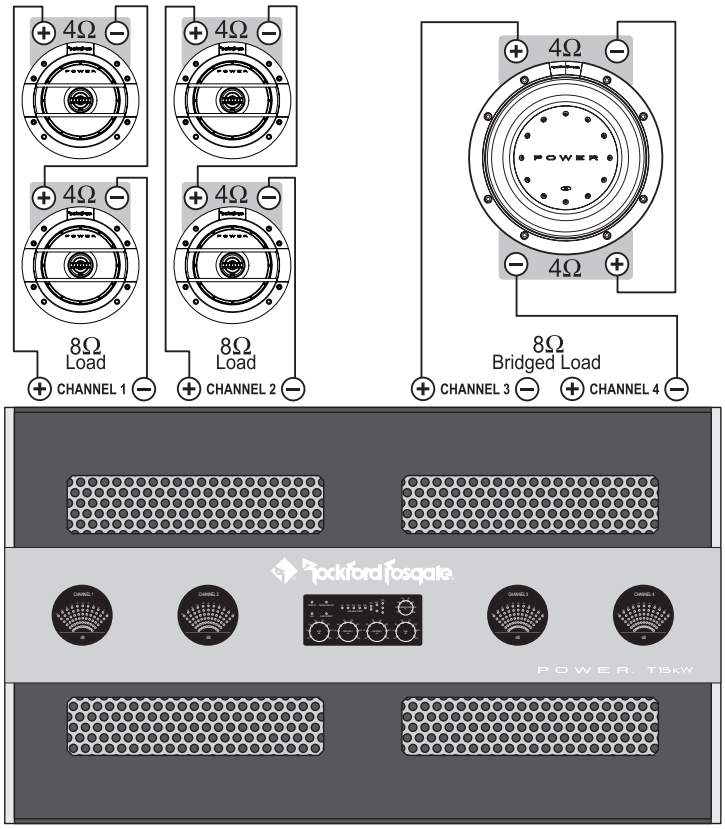
In this configuration the amplifier will provide 250Watts RMS per channel on channels 1 and 2 (125 Watts RMS to each component speaker) and 1000 Watts RMS to the subwoofer.

Example 2:

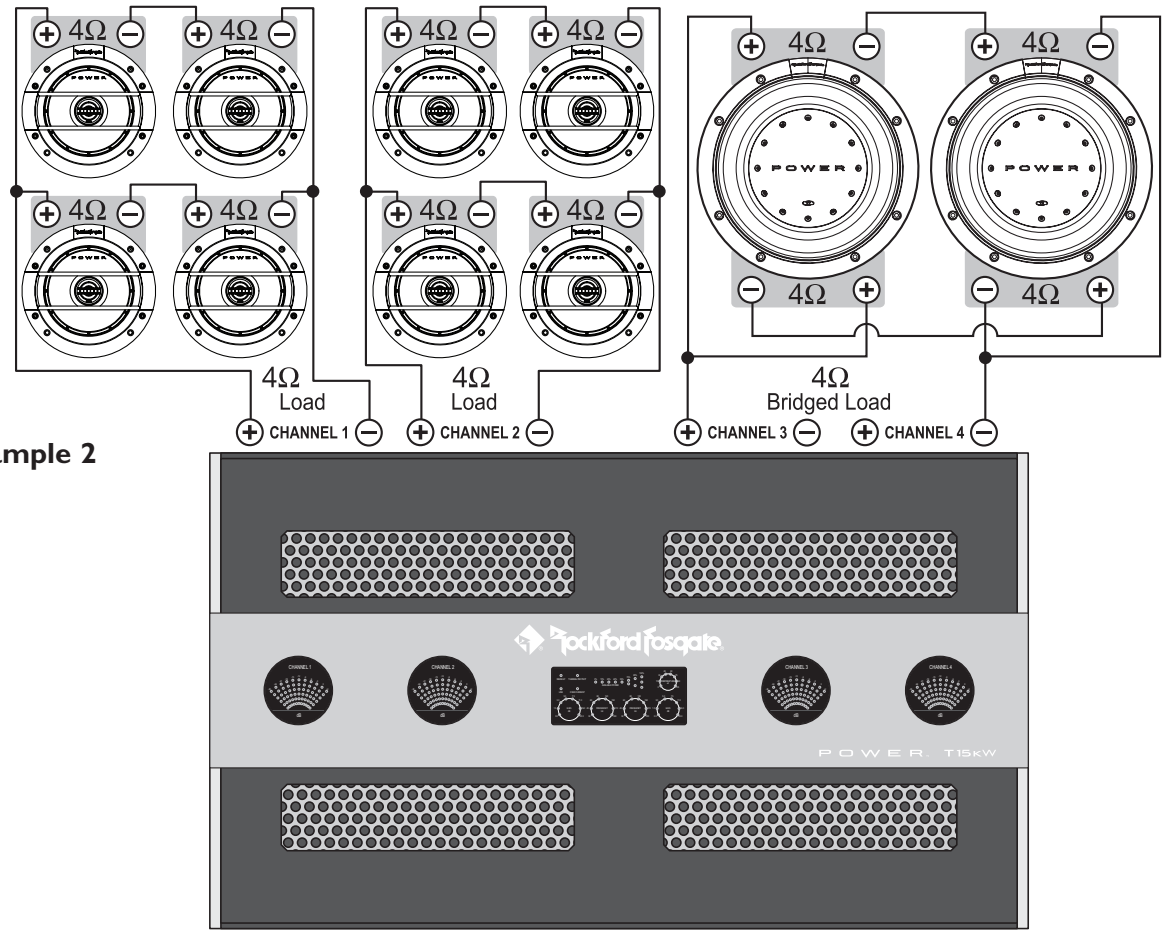
Four sets of component speakers in a series-parallel combination on channels 1 and 2. Two dual 4-ohm voice coil subwoofers in series-parallel combination to channels 3 and 4 bridged. This provides the amplifier with 4-ohm stereo loads on channels 1 and 2 and a 4-ohm bridged load on channels 3 and 4.

In this configuration the amplifier will provide 500 Watts per channel on channels 1 and 2 (125 Watts RMS to each component speaker) and 2000 Watts on the bridged channel 3 and 4 (1000 Watts RMS to each of the subwoofers).

Example 1



Example 2



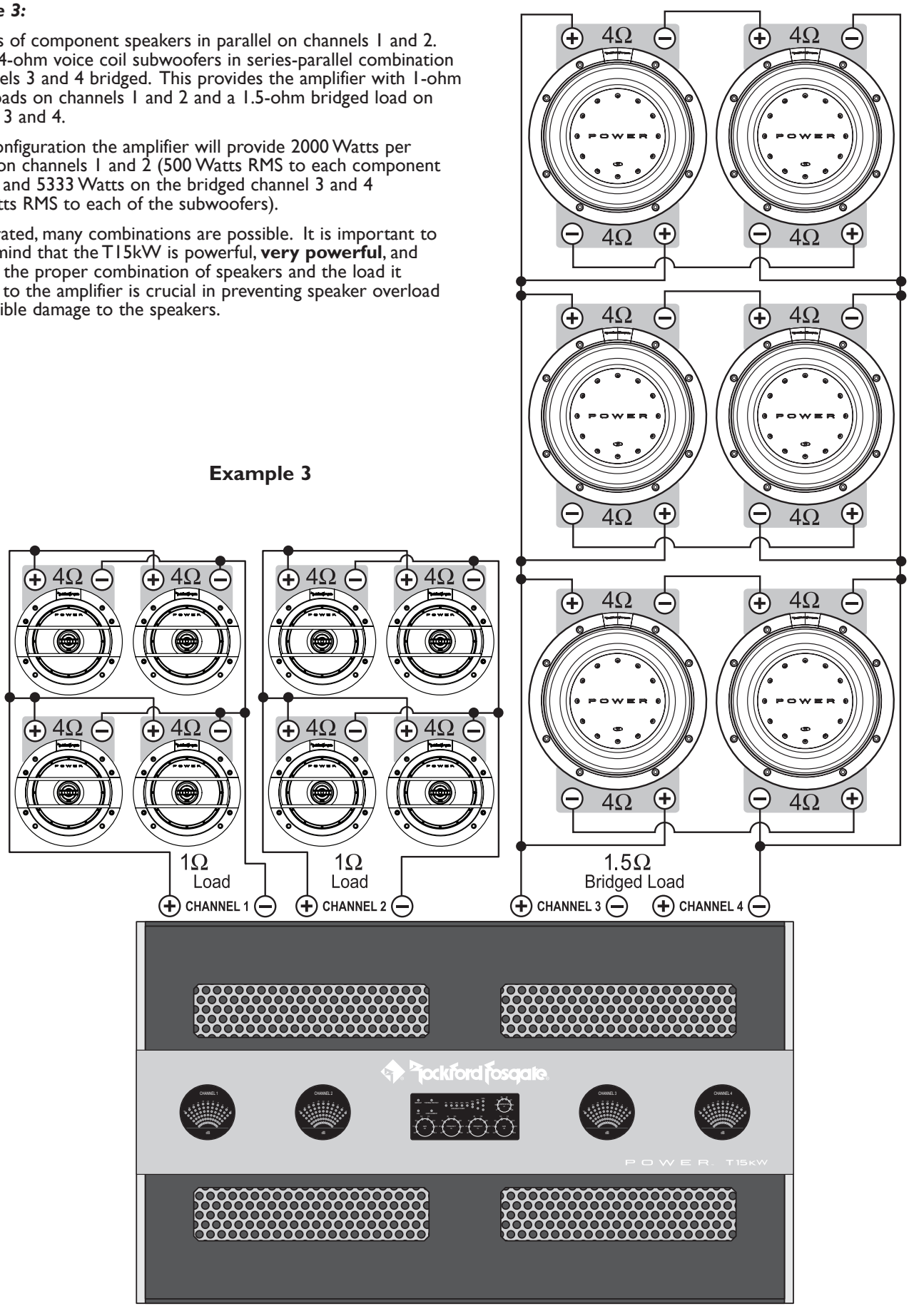
Example 3:

Four sets of component speakers in parallel on channels 1 and 2. Six dual 4-ohm voice coil subwoofers in series-parallel combination to channels 3 and 4 bridged. This provides the amplifier with 1-ohm stereo loads on channels 1 and 2 and a 1.5-ohm bridged load on channels 3 and 4.

In this configuration the amplifier will provide 2000 Watts per channel on channels 1 and 2 (500 Watts RMS to each component speaker) and 5333 Watts on the bridged channel 3 and 4 (889 Watts RMS to each of the subwoofers).

As illustrated, many combinations are possible. It is important to keep in mind that the T15kW is powerful, **very powerful**, and selecting the proper combination of speakers and the load it presents to the amplifier is crucial in preventing speaker overload and possible damage to the speakers.

Example 3



Example 4:

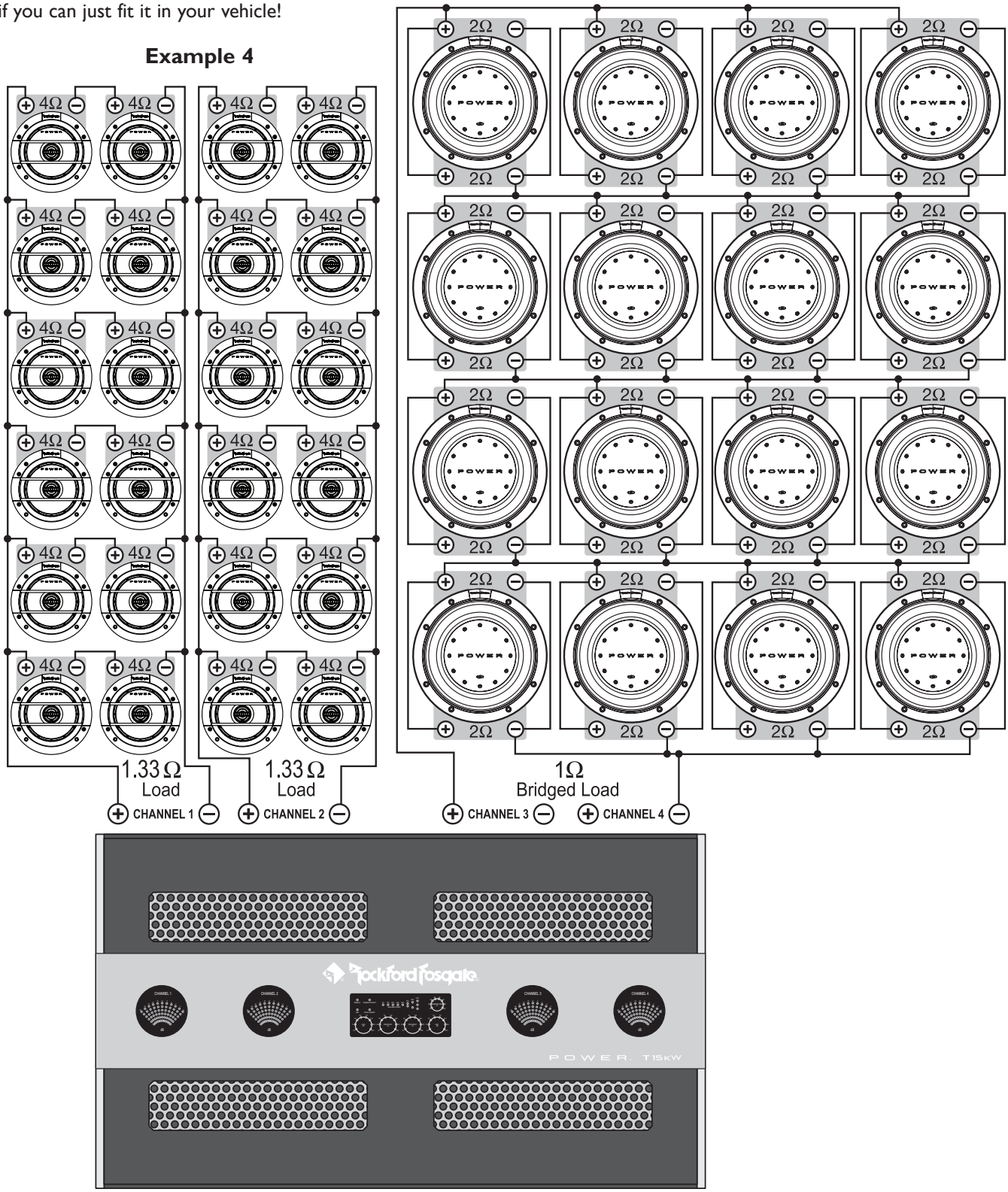
So, those other examples just wasn't enough for you. You want something for the ultimate tailgate party or maybe BLOCK PARTY. Here's a system for you!

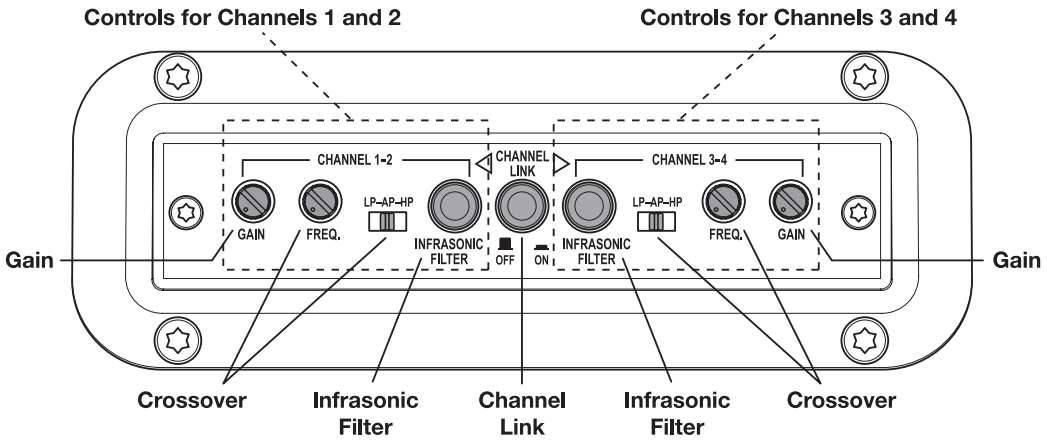
Twelve (12) sets of component speakers in series-parallel on channels 1 and 2. Sixteen (16) dual 2-ohm voice coil subwoofers in series-parallel combination to channels 3 and 4 bridged. This provides the amplifier with 1.33-ohm stereo loads on channels 1 and 2 and a 1-ohm bridged load on channels 3 and 4.

In this configuration the amplifier will provide 1500 Watts per channel on channels 1 and 2 (125 Watts RMS to each component speaker) and 8000 Watts on the bridged channel 3 and 4 (500 Watts RMS to each of the subwoofers).

Now if you can just fit it in your vehicle!

Example 4





ADJUSTING GAIN (Rotary Knob)

1. Disconnect the speakers from the amplifier.
2. Switch both crossovers to AP (All Pass - Center position).
3. Turn both gain controls to 0dB (counter-clockwise all the way).
4. Insert a disc containing a -10dB 1kHz test tone into the source unit. Play the test tone and set source to repeat if necessary.
5. Turn the source unit volume to maximum.
6. Adjust the gain control for channels 1 and 2 until the indicators just hit +2dB. Do the same for channels 3 and 4.
7. Turn the system off and reconnect the speakers to the amplifier.
8. Now you can adjust the crossovers.

This procedure will set the system up with a 10dB of gain overlap. If after listening and evaluating the system you feel more gain is needed, use the gain indicators on the display to help adjust your desired setting. Try adding gain in 2dB increments until the desired overlap is achieved. During music playback if the output displays are hitting +2dB on a regular basis, then the gain is set too high. The +2dB LEDs indicate clipping.

ADJUSTING CROSSOVER FREQUENCY (Rotary Knob and Slide Switch)

Do the following individually for each channel.

Placing the switch in the LP position sets the amplifier to the Low Pass mode (Slide Switch in Full Left Position), enabling frequencies below the cut-off point to pass, adjustable between 32Hz to 300Hz.

Placing the switch in the AP position sets the amplifier to the All Pass mode (Slide Switch in Center Position), preventing any crossover adjustment, allowing all frequencies to pass.

Placing the switch in the HP position sets the amplifier to the High Pass mode (Slide Switch in Full Right Position), enabling frequencies above the cut-off point to pass, adjustable between 32Hz to 300Hz.

Turn the crossover adjustment knob all the way down. With the system playing, turn the crossover adjustment knob up slowly until the desired crossover point is achieved.

INFRASONIC FILTER (Push Button Switch)

Pressing this switch in, switches on a 24dB/octave infrasonic filter designed to prevent frequencies below the audio range from being applied to the subwoofer from the amplifier. Consequently improving subwoofer performance and power handling, particularly in vented enclosures.

NOTE: The recommended setting for this switch is ON or pushed IN. This will help protect the speakers from over-excursion.

CHANNEL LINK (Push Button Switch)

When pushed IN, transforms the T15kW into a true 2-channel (bridged) amplifier. When activated the LED displays for channels 3 and 4 in the top panel status board will be turned off. The Link LED will illuminate indicating the Channel Link is Active. The controls for channels 1 and 2 will control all of the amplifier channels. Only RCA input connections to channels 1 and 2 are used. This feature was designed with the SPL competitor in mind. The way the amplifier would be connected would be as follows:

Only RCA input connections 1 and 2 used.
Link switch on

Channels 1 and 2 bridged
Channels 3 and 4 bridged

When troubleshooting, sometimes it's the simplest things we overlook. Like loose connections, blown fuses or maybe the source unit was switched to mute. Before getting too in depth, check the simple things first.

Amplifier does not come on.

1. Verify power connections at amplifier. Check battery connections.
2. Check in-line fuse on battery positive cable. Replace if necessary.
3. Verify that Ground connection is connected to clean metal on the vehicle's chassis. Repair/replace if necessary.
4. Verify there is 10.5 - 15.5 Volts present at the positive battery and remote turn-on cable (source unit turned on). Verify quality connections for both cables at amplifier, source unit, and battery/fuseholder. Repair/replace if necessary.

Amplifier's LEDs blink on and off when turning unit on.

1. Check that the vehicle charging system is maintaining proper voltage to the amplifier (10.5 - 15.5 Volts).

Available Power LEDs constantly read below 70%

1. Check that the vehicle charging system is maintaining proper voltage to the amplifier (10.5 - 15.5 Volts).
2. Too low of a speaker impedance may also be the cause. Check for proper speaker impedance, rewire if needed. Minimum impedance load is 0.5 ohm stereo and 1 ohm bridged.

Frequency and Gain LEDs for Channels 3 and 4 do not light

1. Channel Link switch is ON (pressed in). When the Channel Link Button Switch is engaged, only the Channel 1-2 controls will function and the gain and frequency displays on the top panel status board for channels 3 and 4 will turn off.

Controls for Channels 3 and 4 do not function..

1. Channel Link switch is ON (pressed in). When the Channel Link Button Switch is engaged, only the Channel 1-2 controls will function and the gain and frequency displays on the top panel status board for channels 3 and 4 will turn off.

All four channels have output when only using Channel 1 and 2 inputs or no output when only using Channel 3 and 4 inputs

1. Channel Link switch is ON (pressed in). This switches the inputs to a 2-channel mode, allowing connection to only the Channel-1 and Channel-2 inputs with a full 4-channel output.

Over-Current light is on and amplifier cuts off.

1. This is a sign of a possible short in the speaker connections. Check for proper speaker connections and use an ohm meter to check for possible shorts in the speaker wiring. Check the speakers for possible damage.
2. Too low of a speaker impedance may also be the cause. Check for proper speaker impedance, rewire if needed. Minimum impedance load is 0.5 ohm stereo and 1 ohm bridged.

Thermal light is on and amplifier cuts off.

1. This is usually a sign of driving the amplifier at very high power levels without adequate airflow around the amplifier. Shut off the system and allow to cool. Ensure adequate ventilation at the back, front and top of the amplifier for air flow (3" minimum). Check that the amplifier's intake and exhaust ports are not blocked.
2. Check for proper speaker impedance, rewire if needed. Minimum impedance load is 0.5 ohm stereo and 1 ohm bridged.
3. Low battery voltage may also be the cause. Check that the vehicle charging system is maintaining proper voltage to the amplifier (10.5 - 15.5 Volts).

If the previous items do not solve the problem, a fault may be in the amplifier, call customer service for support.

Amplifier Turn-on Pop.

1. Disconnect input signal to amplifier and turn amplifier on and off.
2. If the noise is eliminated, connect the REMOTE lead of amplifier to source unit with a delay turn-on module.

OR

1. Use a different 12 Volt source for REMOTE lead of amplifier (i.e. battery direct).
2. If the noise is eliminated, use a relay to isolate the amplifier from noisy turn-on output.

Excess Engine Noise.

1. Route all signal carrying wires (RCA, Speaker cables) away from power and ground wires.

OR

2. Bypass any and all electrical components between the source unit (radio) and the amplifier. Connect source unit directly to input of amplifier. If noise goes away the unit being bypassed is the cause of the noise.

OR

3. Remove existing ground wires for all electrical components. Reground wires to different locations. Verify that grounding location is clean, shiny metal free of paint, rust etc.

OR

4. Add secondary ground cable from negative battery terminal to the chassis metal or engine block of vehicle.

OR

5. Have alternator and battery load tested by your mechanic. Verify good working order of vehicle electrical system including distributor, spark plugs, spark plug wires, voltage regulator etc.

Continuous Power Rating (RMS) - Measured at 14.4 Battery Volts

Stereo Output Power

4 ohms	500 Watts RMS X 4
2 ohms	1000 Watts RMS X 4
1 ohm	2000 Watts RMS X 4
0.5 ohm	3750 Watts RMS X 4

Bridged Output Power

4 ohms	2000 Watts RMS X 2
2 ohms	4000 Watts RMS X 2
1 ohm	7500 Watts RMS X 2

Battery Fuse Rating (Amp) External (Not Supplied)		600A (2-300A)
Dimensions:	Height	10.0" (25.4cm)
	Width	37.5" (95.2cm)
	Depth	22.0" (55.9cm)
Weight		195lbs. (88.4kg)

Maximum Output Current per channel	127 Amps peak
Maximum Unclipped Output Voltage per channel (stereo)	45 Volts RMS
Maximum Unclipped Output Voltage per channel (bridged)	90 Volts RMS
Frequency Response	10Hz - 40kHz +/- 0.5dB
"A" Weighted Signal to Noise Ratio Referenced to 1 Watt into 4 ohms	>90 dB
"A" Weighted Signal to Noise Ratio Referenced to rated output into 4 ohms	>120 dB
Total Harmonic Distortion + Noise at rated power into 4 ohms	<0.05%
Damping Factor into 4 ohms	>250
Input Sensitivity	200mV - 5.5V RMS
Input Impedance	10k Ohms
Crossover Slope	12dB/Octave Butterworth LP/AP/HP (Low Pass / All Pass / High Pass)
Crossover Frequency	variable from 32Hz to 300Hz
Infrasonic Filter	24dB/Octave -6dB @ 20Hz
Protection	NOMAD - Internal analog-computer output protection circuitry limits power in case of overload, plus short protection. Thermal switch shuts down the amplifier in case of overheating.

LIMITED WARRANTY INFORMATION

Rockford Corporation offers a limited warranty on the following Rockford Fosgate product on the following terms:

Length of Warranty

POWER T15kW Amplifier – 2 Years (with exclusions, see below)

What is Covered

This warranty applies only to Rockford Fosgate product stated, sold to consumers by Authorized Rockford Fosgate Dealers in the United States of America or its possessions. Product purchased by consumers from an Authorized Rockford Fosgate Dealer in another country are covered only by that country's Distributor and not by Rockford Corporation.

Who is Covered

This warranty covers only the original purchaser of Rockford product purchased from an Authorized Rockford Fosgate Dealer in the United States. In order to receive service, the purchaser must provide Rockford with a copy of the receipt stating the customer name, dealer name, product purchased and date of purchase.

If this product is found to be defective during the warranty period it will be repaired at Rockford's discretion.

What is Not Covered

1. Damage caused by accident, abuse, improper operations or installation, water, theft, shipping
2. Any cost or expense related to the removal or reinstallation of product
3. Service performed by anyone other than Rockford or an Authorized Rockford Fosgate Service Center
4. Any product which has had the serial number defaced, altered, or removed
5. Subsequent damage to other components
6. Cosmetic or exterior housing components
7. Product returned to Rockford in other than original shipping crate
8. Any product purchased outside the U.S.
9. Any product not purchased from an Authorized Rockford Fosgate Dealer

Limit on Implied Warranties

Any implied warranties including warranties of fitness for use and merchantability are limited in duration to the period of the express warranty set forth above. Some states do not allow limitations on the length of an implied warranty, so this limitation may not apply. No person is authorized to assume for Rockford Fosgate any other liability in connection with the sale of the product.

How to Obtain Service

Contact the Authorized Rockford Fosgate Dealer you purchased this product from.

If you need further assistance, call 1-800-669-9899 for Rockford Customer Service. You must obtain an RA# (Return Authorization number) to return any product to Rockford Fosgate. You are responsible for shipment of product to Rockford.

EU Warranty

This product meets the current EU warranty requirements, see your Authorized dealer for details.

Ship to: **Electronics**
Rockford Corporation
Warranty Repair Department
2055 E. 5th Street
Tempe, AZ 85281
RA#:_____

06/06 B.M.
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