

KBL & KPA OWNERS' MANUAL



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INTRODUCTION

Thank you for your purchase of a new KRELL preamplifier. This Owners' Manual covers both the KBL and KPA preamplifiers, as they have been designed to be companion pieces and can be utilized in varying combinations. For each user there will be information that does not pertain to their specific situation. Therefore, in the interest of clarity, details relating to different combinations are presented in well-defined sections.

The KBL and KPA represent significant departures from traditional preamplifier design. The time invested in carefully reading this manual will yield an important understanding of the functions and design features of the units. Due to the high level of performance of which these units are capable, careful placement and installation are crucial. Your thorough understanding of the operations of the KBL and KPA will help insure their maximum performance and long life.

ABOUT THE OWNERS' MANUAL

The KBL/KPA Owner's Manual is divided into various groups of information. The purpose of the document as a whole is to familiarize you with the units and guide you through their set-up, installation and operation in a logical progression. The Table of Contents is as follows:

- A. Serial Number(s) and Factory-Shipped Configuration
- B. General Information: a description of the basic design and performance features of the KBL and KPA
- C. Unpacking: detail of accessories shipped with the KBL and KPA in various configurations

- D. Installation:
1. Caution
 2. Connector Details
 3. Connector Termination Types
 4. Cable Requirements for Inputs and Outputs
 5. Setting of Internal Switches
 6. Unit Location Guidelines and Installation
 7. Connection of Inputs and Outputs
 8. Turn-on of the Preamplifiers

- E. Operation:
1. KPA Functions
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F. Warranty and Service Information

G. Termination Drawings

A. SERIAL NUMBERS & FACTORY-SHIPED CONFIGURATION

KBL preamplifier serial number _____ was shipped from the factory set-up for _____ stereo operation _____ dual-mono operation.

Please refer to information specific to this mode of operation throughout the manual.

Should you wish to change between stereo and monaural operation please refer to section D. 5. This is only necessary when changing either unit from stereo to mono operation.

All KPA are shipped from the factory set-up for stereo operation. Please refer to section E. 1, d for information regarding dual-mono operation.

B. GENERAL INFORMATION

The KRELL KBL (Krell Balanced Line) and KPA (Krell Phono Amplifier) present many new concepts in preamplifier design. The traditional preamplifier contains both a phono section and a line section. The KBL and KPA divide these functions into two separate units. This was done for several reasons. The primary motivation was to allow adequate space to accommodate the latest evolutions of preamplifier circuitry and functions.

These units are the current state-of-the-art. No compromise was allowed in their design. Details concerning their technical performance are covered in more detail below. A second important consideration was to introduce the programmable concept employed in our current KSA/KMA amplifier line into our preamplifier line. A single KBL and KPA are used for stereo operation. A second unit of either can be added to achieve dual-mono, fully balanced operation. They can be easily changed without being returned to the factory. There are many advantages to dual-mono operation. The capability of the KBL and KPA to operate in either mode allows you to plan the development of your system over time, without the waste of money and time associated with trading or selling used gear. It also allows you to optimize your system more closely to your needs. For example, if line sources are most important, you can purchase two KBLs', with or without a KPA. If phono is most important you can purchase two KPA's and one KBL creating a completely balanced path for the phono signal. The ultimate configuration, of course, is two KBL and two KPA. This creates a completely dual-mono, balanced preamplifier system for all inputs and outputs. Other details concerning the functions of the units are covered below and in the Installation and Operation sections.

The method used to switch a KBL or KPA from stereo to dual-mono operation is unique. For stereo operation each chassis has complete circuit paths for the left and right channels. When switched to dual-mono, balanced operation the left channel circuitry is assigned to the non-inverted path and the right channel circuitry is assigned to the inverted path. This changes the rear panel connector assignments on both the KBL and KPA. See the sections on Installation and Operation below for more details.

The KBL and KPA use high-bias, pure Class A circuits throughout, including the power supplies and regulators. Circuits are DC coupled, meaning there are no capacitors in the signal path. The power supply system and output circuits are extremely high-power when compared with conventional preamplifier designs. The output section of the KBL, for example, is really a small power amplifier, capable of swinging 60 volts peak-to-peak. This allows the KBL to maintain exceptional linearity under all conditions and drive virtually any length of cable without signal degradation. The external supply has two stages of regulation. Within each preamp chassis there are independent tracking regulators for each section of circuitry, separated channel-to-channel.

The KPA has completely passive RIAA equalization. Maximum deviation from the standard is +/- .1 dB from 10Hz to 20KHz. All parts are 1% tolerance.

Both preamplifiers have innovative operational features. The KBL has two balanced inputs and one set of balanced outputs in addition to four single-ended inputs and one set of single-ended outputs. This allows one KBL to accommodate balanced line sources and amplifiers, which Krell believes to be the standard for high-end audio gear. Therefore, it is only necessary to purchase a second KBL to achieve dual-mono, fully balanced operation. The KBL input labeling is a departure from the norm as well. Instead of the conventional "phono, tuner, tape, aux, etc." we have labeled the inputs B-1, B-2, S-1, S-2, S-3, S-4. These refer to Balanced Input #1, Balanced Input #2, Single-ended Input #1, etc. Components in audio systems today are unpredictable. This input labeling allows KBL Selector can to be set-up or changed by each user to create the order he desires.

The KBL has front panel adjustments for output gain and absolute phase. The Gain switch provides a course adjustment to compensate for systems of different efficiencies and for level differences in source components.

The KPA has inputs for two different cartridges. There is a front panel switch to adjust between the gains required for moving coil and moving magnet cartridges. Adjustment for cartridge impedance loading is on the front panel as well. Perhaps the most interesting features on the KPA are the front panel adjustments for high and low RIAA trim. These allow you to tailor the RIAA equalization to specific records in small increments. Single-ended/Balanced switching are also on the front panel.

C. UNPACKING

Remove the units from the shipping container. Keep the shipping materials in a safe, dry place for future use. The following is a list of the materials that are included in the packaging.

1 KBL

1 each: preamplifier chassis
 KBL power supply with DC cable installed
 AC line cord
 "T" shaped Allen driver
 Spare fuse for the power supply
 Owner's Manual

1 KBL & 1 KPA packed together

1 each: KBL & KPA preamplifier chassis
 KBL power supply with DC cable installed
 AC line cord
 DC jumper cable (KBL to KPA)
 "T" shaped Allen driver
 Spare fuse for the power supply
 Owner's Manual

1 KPA without power supply

1 each: preamplifier chassis
DC jumper cable (KBL to KPA)
"T" shaped Allen driver
Owner's Manual

1 KPA with power supply

1 each: preamplifier chassis
KPA power supply with AC and DC cables attached
DC jumper cable (KBL to KPA) *not used when the
dedicated KPA supply is used*
"T" shaped Allen driver
Owner's Manual

Inspect the unit(s) and power supply(s) for damage. If any is evident, or if some of the accessories are missing, contact your dealer or the factory immediately. If everything is in order you can proceed with the next steps.

D. INSTALLATION

1. Cautions

Note: These are important points of which you should always be aware. They are presented before the actual installation procedures, should you not read through the Manual entirely.

- a. When installing the KBL always connect the DC cable between the preamp chassis and the power supply before plugging the power supply into the AC mains.
- b. When installing a KBL/KPA combination always connect the DC cables between the KPA and the KBL, and between the power supply and the KBL before plugging the power supply into the AC mains.
- c. Always disconnect the AC from the mains before disconnecting the DC cable(s) from the preamp(s).
- d. A single KPA cannot be operated in balanced mode. The "Balanced" push-button should not be activated unless two KPA are used.
- e. These points are true for both the initial installation of the KBL or KPA and for revisions of your system that require their relocation.

2. Connector Details

This section, with sections 3 & 4 below, presents all details necessary to make or modify cables for use with all combinations of the KBL and KPA. After reading these sections, check all the cables you intend to use to make sure they are appropriate for your installation.

a. General Information

Different configurations of the KBL and KPA require different cable terminations. The connector assignments for the KBL and KPA inputs and outputs are given.

- b. KBL Connector Assignments: B-1, B-1: female 3-pin XLR
S-1, S-2, S-3, S-4: female RCA
Record Outputs : 2 sets, female RCA
Main Outputs: 1 set on female RCA
1 set on 3-pin male XLR

- c. KPA Connector Assignment: All are female RCA

3. Connector Termination Types

For all terminations: Make sure wire color and pin numbers match at both ends of the cable.

- a. Standard RCA Termination; uses either coax cable or two-conductor coaxial cable:

Center pin = audio signal

Outer ring = ground: when using two-conductor coax cable one center conductor is connected to the outer ring at both ends; the shield is connected to the outer ring at only one end. This end should be marked and used at the input end of the cable. For example, this end would go to the amplifier when the cable is run from preamp to amp.

Used for all RCA inputs and outputs on the KPA and the KBL when operated with single-ended components.

- b. Standard XLR Termination; uses two-conductor coaxial cable:

Pin 1 = ground

Pin 2 = non-inverted signal (also called 0 or + signal)

Pin 3 = inverted signal (also called 180 or - signal)

Used on inputs B-1, B-2 and Main Output of the KBL when used in either stereo or dual-mono.

All Krell Industries and Krell Digital products use this pin-out for inputs and outputs.

c. Balanced RCA Termination; uses two-conductor coaxial cable:

See Drawing 1 at the rear of the Manual for details.

1 pr. of RCA connectors are used on each end of the cable with this termination; 4 prs. total are used if this termination is used at both ends.

Red RCA Center pin = first cable center conductor (0 or +)

White RCA Center pin = second cable center conductor (180 or -)

Outer Ring, both RCA = shield from around the two center conductors

Used for inputs S-1, S-2, S-3, S-4, Record Outputs, and the Main output of the KBL when operated in dual-mono.

Used for both inputs and the Main output of the KPA when used in dual-mono.

Can be used between two KPAs and two KBLs operating in dual-mono.

d. Balanced RCA to XLR Termination; uses two-conductor coaxial cable

See drawing 2 at the rear of the Manual for details.

2 prs. RCA and 1 pr XLR connectors are used on each pair of audio cables

The XLR end uses the termination detailed in section b above;

the RCA end uses the termination detailed in section c above.

Pin 2 on the XLR is the non-inverted signal and is soldered to the red RCA; Pin 3 on the XLR is the inverted signal and is soldered to the white RCA.

Can be used between two KPA and two KBL operating in dual-mono.

e. Balanced KPA Input Termination; uses two-conductor coaxial cable.

See Drawing 3 at the rear of the Manual for details.

2 prs. of RCA connectors are used for each cable; 4 prs. total.

This is a special termination that allows for a balanced input from the cartridge to two KPAs. There is no other use for this termination.

4. Cable Requirements for Inputs and Outputs

Read the portions of sections a and b below that pertain to your system for the specific cable terminations required.

If you are adding to your system you may need to change some cable terminations to take full advantage of dual-mono, balanced operation.

a. System Configuration/Terminations

<u>Unit(s)</u>	<u>Inputs</u>	<u>Outputs</u>	<u>Terminations</u>
One KBL	B-1 & B-2 S-1, S-2, S-3, S-4	Record 1 & 2 Main on RCA Main on XLR	male, b male, a male, a male, a female, b

One KPA	1 & 2	Main	male, a
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<u>Unit(s)</u>	<u>Inputs</u>	<u>Outputs</u>	<u>Terminations</u>
Two KBL	* B-1 & B-2 S-1, S-2, S-3, S-4	Record 1 & 2 Main on RCA *Main on XLR	male, b c c c female, b

*Only the left connectors are operational in dual-mono; the right connectors are disabled.

Two KPA	1 & 2		e
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Two KPA		Main	c
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b. Specific KPA to KBL Cable Requirements

<u>Unit(s)</u>	<u>Terminations</u>
One KPA to one or two KBLs	a both ends
Two KPAs to one or two KBLs	c both ends
<u>or</u> Two KPAs to one or two KBLs	d, w/ male XLR (KBL end)

5. Setting of Internal Switches

Please read this section to determine if you have the need or desire to change the internal switches.

a. KBL Stereo/Dual-Mono switches

These switches are used to change the KBL between stereo and mono operation. Their most common use is to change an existing KBL from stereo to dual-mono when installing a second KBL for dual-mono. There is one double-toggle, two-position dip switch between the input connectors for B-1 (SW6) and for B-2 (SW7); there is a third near the balanced output connectors (SW8).

All three switches must be set the same. They are not to be set in any other combination.

- Positions C2 & C4 depressed are for stereo operation.
- Positions C1 & C3 depressed are for mono operation.*

*In dual-mono operation only the left XLR connectors are operational; the right connectors are disabled. All RCA connectors remain operational, but with different functions. See section D3, Connector Terminations, below for details.

b. KBL Indicator LED switch

The Symmetry LEDs on the KBL can be disabled. Their function is unrelated to stereo or mono operation. The switch located just forward of SW8 in the right, rear of the unit, controls this function.

Positions 1 & 2 depressed allow the LEDs to light.
Both switches depressed to "Open" disable the LEDs.

6. Unit Location Guidelines and Installation

Before installation of your KBL/KPA(s) and power supply(s) we recommend that you follow these guidelines in choosing proper locations for the units. This will help insure a trouble-free installation and maximum performance of the preamps.

All associated equipment should be turned off at this point.

a. Preamplifier Location Guidelines

1. The KBL and KPA measure 19" wide, 13" deep, 2.5" high.

2. Four inches clearance should be allowed above the top of either the KBL or KPA. Only a small amount of clearance is needed on the sides. Four to six inches clearance should be allowed at the rear of either unit to provide for cables.
3. The units can be stacked. KPA(s) should be placed on the bottom with KBL(s) on top.
4. KPA(s) are sensitive to induced hum from motors or power supplies. In general, they should be located at least one foot from other components (with the exception of the KBL). In particular, power supplies, tape recorders, and turntables should be more than a foot away from the KPA(s).

b. Preamplifier Installation

Place the preamplifier(s) in position. Check that all cable lengths are adequate at this point.

c. Power Supply Location Guidelines

1. The KBL supply measures 9.75" wide, 12" deep, 2.25" high
The KPA supply measures 7.25" wide, 7.75" deep, 2.5" high
(Only KPA not powered from a KBL have a separated supply)
2. Six foot AC and DC cables are provided with the supply(s).
Plan the respective position of the supply(s) and preamplifier(s) within these distances. Allow at least a small amount of cable to be excess, so neither cable is pulled tight. Contact the factory if the DC cable is too short. Any attempt to extend it jeopardizes the power supply and the preamp, and will void the unit's warranty.
3. Although well shielded, the power supply(s) should not be placed close to hum-sensitive components such as turntables, phono preamps or tape recorders.
4. Allow ample air space around the supply(s) for heat dissipation. Five inches on top and two inches on each side is adequate. Two supplies should not be placed directly on top of each other. They should be placed side-to-side.
5. The KBL or KPA supplies do not require that an ACV circuit be dedicated for their use. They should be connected to a 15 or 20 amp circuit that is dedicated for the source components and the preamplifiers. Do not connect them to the mains with light-gauge (18 or higher) extension cords or multiple outlet adapters. AC extension cords, outlet strips and good quality surge protectors that are rated for 15 amps and grounded are acceptable.

d. Power Supply Installation

1. Place the power supply(s) in location.
2. Connect the DC cable(s) from the supply(s) to the preamp(s)
3. Plug the DC jumper between the KBL(s) and KPA(s).
4. Do not plug the AC connector(s) into the mains at this time.

7. Connection of Inputs and Outputs

All source components and amplifiers should be off at this point.

When connecting balanced components to the KBL via RCA connectors be sure to maintain proper polarity of the non-inverted and inverted inputs. The non-inverted inputs are the Left connectors on the top row; the inverted inputs are the Right connectors on the bottom row. Also, if you are using two KBL in dual-mono, remember that the Left XLRs are operational and the Right XLR connectors are disabled.

a. Connection of Input Sources

1. Connection of the KPA Inputs and Outputs

Either input can accommodate a moving magnet or moving coil cartridge.

Single KPA: connect the cartridge outputs to the KPA inputs 1 & 2 in the conventional manner.

Dual KPA, balanced input wiring from the cartridge(s): connect the "high" (left = white, right = red) output from the cartridge to the left input connectors on the KPAs. Connect the "low" (left = blue, right = green) to the right input connectors on the KPAs. Typically the top unit is used for the left channel and the bottom unit is used for the right channel.

The output of the KPA is high-level input and can be sent to any input on the KBL(s). Connect the output of the KPA(s) to the KBL inputs at this time.

2. Connection of KBL Inputs

The inputs of the KBL have not been labeled with specific component names so you can set up the Select switch pattern to your preference. B-1 and B-2 refer to Balanced inputs 1 & 2; S-1, S-2, S-3, S-4 refer to Single-ended inputs 1 through 4. Once you have decided which component will be assigned to which input, proceed with connecting the source components to the desired inputs.

b. Connection of KBL Record Outputs

There are two Record outputs which receive the signal from the input chosen on the Select switch for sending to two tape recorders. The two outputs are wired in parallel and have no relation to any of the inputs.

Make the connections between the Record outputs and tape recorders at this time.

c. Connection of the KBL Main Outputs

There are two sets of Main outputs: one set single-ended on RCAs', one set balanced on XLRs. They are wired in parallel and can be connected and operated simultaneously. They are provided to drive two independent systems from one preamplifier.

Make the connections between the Main outputs and amplifier(s) and/or crossovers at this time.

8. Turn-on of the Preamplifiers

a. Initial Turn-On

All source components and amplifiers should be off at this point. The KPA and KBL Select switches should be set to "Mute" position, and the KBL volume control(s) should be fully counterclockwise.

Connect the KBL and KPA (if a separate supply is being used for the KPA) power supply(s) to the AC mains at this point. The LED's on the power supply(s) and on the preamplifier front panel(s) should now illuminate. None of the other LEDs' should be illuminated at this point.

b. Future Use

The KBL and KPA are designed to be on at all times. In other words, they are not intended to be routinely switched on and off. The only times it is recommended to turn the units off is when your system will be left unattended for a long period of time, such as during a vacation or a business trip. In these cases all other equipment should be turned off, and the KBL/KPA power supply(s) should be disconnected from the AC mains. When you return, re-connect the supply(s) to the AC mains before turning on other equipment.

This procedure should also be followed if you reorganize your system and need to change the wiring of the supply(s) to the preamps.

E. OPERATION

1. KPA Functions

a. Select

Use the Select switch to choose between two different cartridges or tonearms. If the two inputs are not the same type cartridge be sure to change the gain with the Gain switch to avoid any overload conditions. See section c below.

b. Loading

Use the Loading switch to adjust the impedance load for the selected cartridge input. This can be adjusted while listening with the KBL or preamp volume at normal levels without causing damage to any other component. The correct load for any cartridge is a matter of personal taste. Start by setting the control to the load recommended by the manufacturer. Evaluate the sound at this and several other settings. Experiment until you determine the setting for the most desirable sound quality.

c. Gain

Use the Gain switch to change the KPA between moving coil and moving magnet gain. The LED indicator will illuminate when the unit is set for moving magnet gain. The switch can only be operated when the Select switch is in its Mute position.

d. Balanced

The Balanced switch is used to change the unit from stereo to dual-mono operation, balanced, when two KPAs are being used.

To activate Balanced operation put the Select to its Mute position and then engage the Balanced switch. The LED indicator will illuminate when the unit is set for balanced operation.

This switch is only for use with two KPAs operating in dual-mono. It cannot be used with one KPA.

e. RIAA Adjustment. 20 Hz

Use this switch to make subtle adjustments to the low end of the RIAA equalization curve. The LED indicator will illuminate when the switch is in any position other than flat.

This switch can be operated while listening to the KPA at normal levels without risk of damage to the preamplifier, amplifier(s) or speakers. Its setting is a matter of personal taste.

f. RIAA Adjustment, 20 KHz

Use this switch to make subtle adjustments to the high end of the RIAA equalization curve. The LED indicator will illuminate when the switch is in any position other than flat.

This switch can be operated while listening to the KPA at normal levels without risk of damage to the preamplifier, amplifier(s) or speakers. Its setting is a matter of personal taste.

2. KBL Functions

a. Select

Use the Select switch to choose between the various source (playback) components for listening. Be sure to lower the volume when switching among components, as large differences in level between sources can cause damage to other components.

The Select switch is also used to choose the signal to be sent to the tape recorders via the Record outputs.

When two KBLs are used in dual-mono, both Select switches must be set the same.

There is a Mute function at the 12 o'clock position that should be used when source material is being changed, or when source components are being turned on and off, and at the completion of each listening session.

Note: Components that are not being listened to should be turned off or have their volume turned down. For instance, a tuner should be turned off, or have its volume lowered while it is not being listened to.

b. Monitor

Use the Monitor switch to listen to the playback from a recording device. This can be done while the recording is in process, such as with three-head tape recorder, or during playback only.

The inputs available on the Monitor switch are S-1 and B-2. These are wired in parallel to the same inputs on the Select switch.

Input B-2 on the Monitor switch uses only the non-inverted signal. Therefore, if you are feeding a balanced signal into B-2, there will be a 6 dB difference in level between B-2 on the Select switch and on the Monitor switch. The level on the Select switch will be the higher one.

Note: Be careful not to create a feedback loop between the KBL and tape recorder. This can happen by selecting the tape recorder output on the Select switch and having the tape recorder set on "source". This set-up takes the output of the tape recorder to the KBL, through the Record output, back to the tape recorder inputs, and out the tape recorder outputs to the KBL again. When doing Tape/Source comparisons always use the Monitor switch for the tape recorder output and do the Tape/Source switching on the tape recorder.

c. Gain

Use the Gain switch to adjust the overall gain of the KBL. The Low position is 9 dB of gain; the High position is 15 dB. The LED indicator is illuminated when the switch is in the High position. The switch can be changed during listening at low and moderate listening levels. During high level listening it is advisable to lower the volume before adjusting the switch.

d. Phase

Use the Phase switch to reverse the absolute phase of the Main outputs. The switch is functional for both the single-ended and balanced outputs. The LED indicator is illuminated when the switch is set for phase reversal.

When two KBLs are used, the Phase switch on one KBL can be used to reverse the phase of one channel in relation to the other.

Many recordings have had their overall phase reversed during the various processing stages. When the absolute phase and phase relationship between channels is correct there are improved transients and dynamic detail.

e. Symmetry

1. One KBL Operating in Stereo

When a single KBL is used for stereo operation the function of the Symmetry control is like a conventional balance control. Use it to adjust for small level differences between channels. There are four 1 dB steps of attenuation and an Off position for each channel.

When the control is turned clockwise the left channel is attenuated; when turned counterclockwise the right channel is attenuated. The LED indicators may illuminate at high listening levels. This indicates that a level difference exists between the left and right channels at that moment. This can be disregarded unless there is an audible channel imbalance.

2. Two KBL Operating in Dual-Mono

When two KBL are used for dual-mono operation the Symmetry control adjusts for differences in level between the non-inverted and inverted outputs. When there is an imbalance between the two outputs one of the LEDs will illuminate to indicate the output that is lower in level. Turn the control in that direction until the LED goes out. This may or may not occur in both channels at the same time.

The LEDs can be disabled if desired. See section D, 5 above for details on turning off the LEDs.

f. Level

Use the level control to adjust the listening level.

When two KBLs are used the level controls on the two preamps also control the balance between left and right channels.

F. WARRANTY

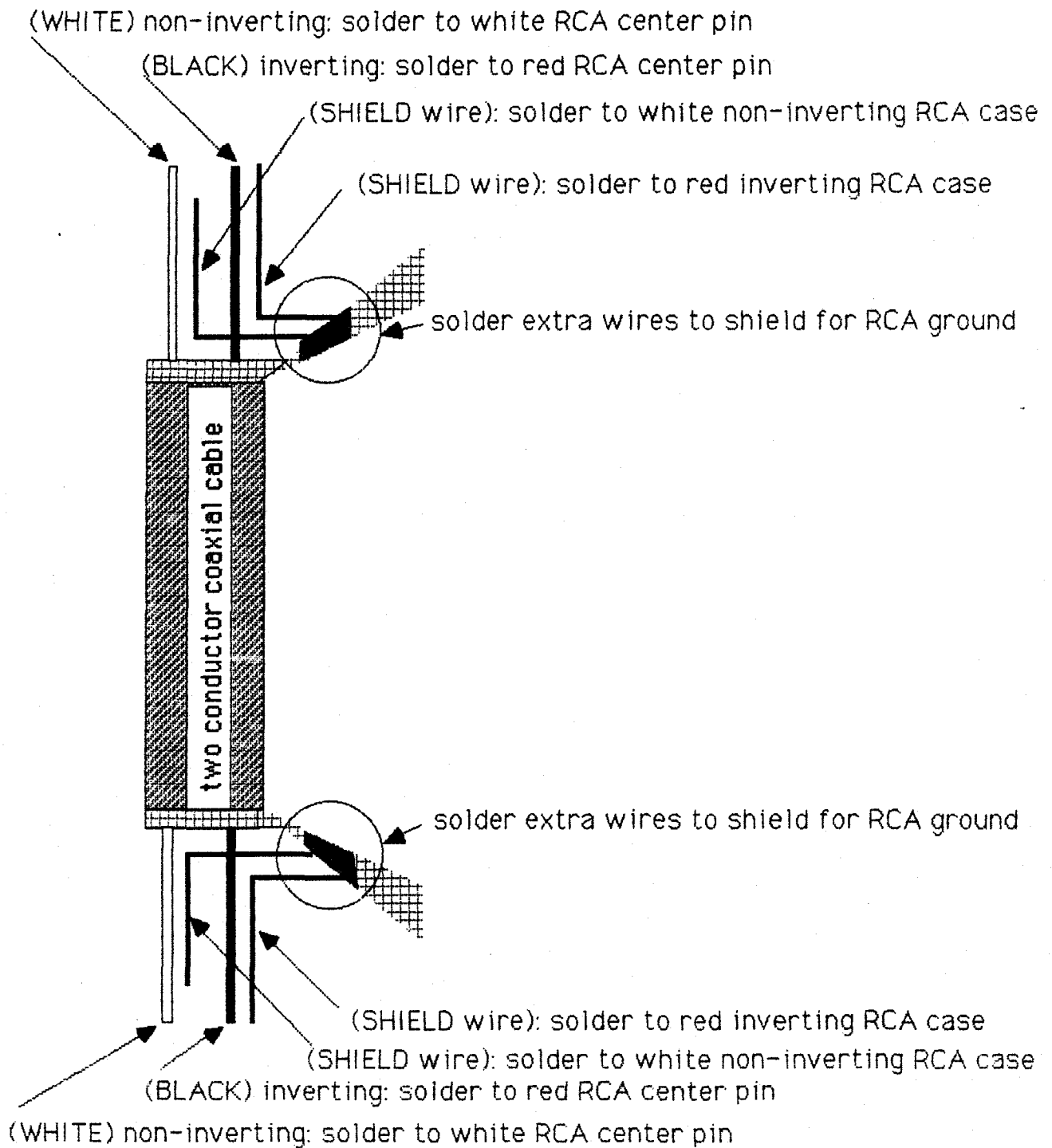
The KBL and KPA have a limited warranty of five years from the date of purchase. Please return completed warranty cards for each unit immediately after successful installation and operation are completed.

The warranty for all Krell product is valid in the country to where it was originally shipped and at the factory. If there are problems with your unit(s) please contact your dealer or the factory immediately.

Should your unit need to be repaired, contact the factory or your distributor for a return authorization. Freight to the factory or distributor is your responsibility. Return freight to you will be paid by the factory or distributor.

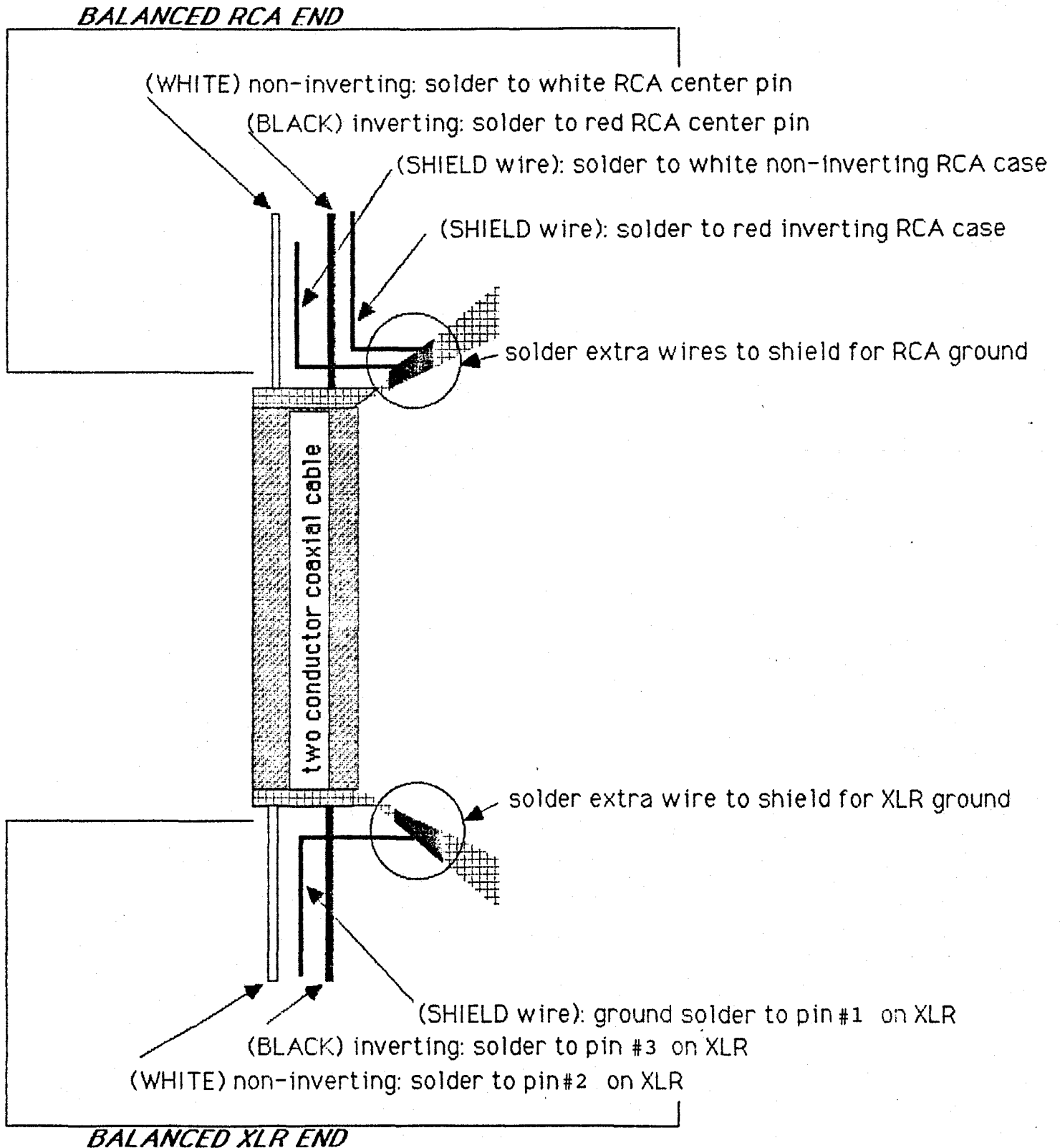
Balanced RCA to RCA cable wiring diagram

Drawing 1, Termination c.



Balanced RCA to XLR cable wiring diagram

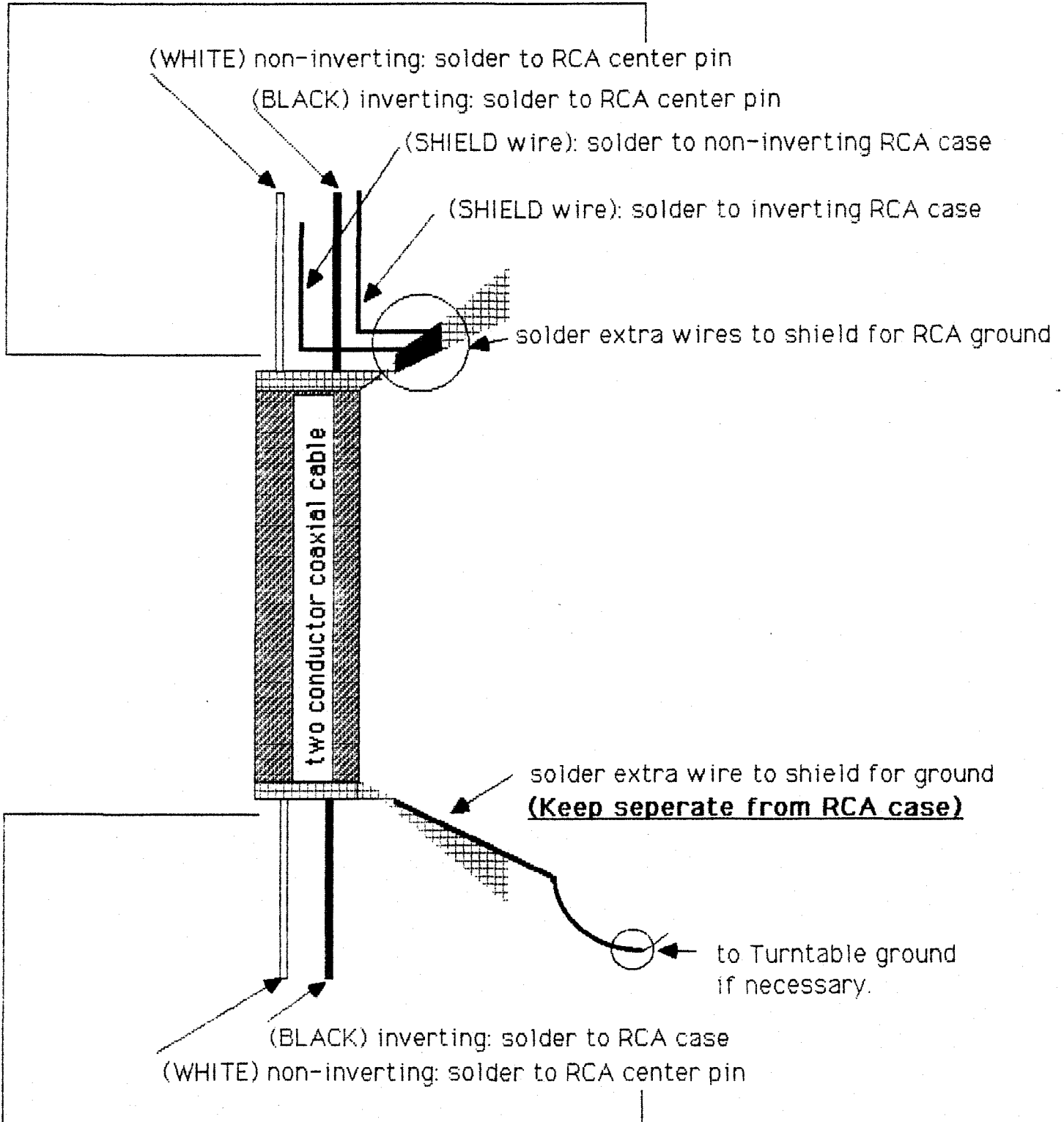
Drawing 2, Termination d.



Balanced KPA cable wiring diagram

Drawing 3, Termination e.

BALANCED KPA END



TURNTABLE END