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You can read the recommendations in the user guide, the technical guide or the installation guide for RANE FPE 13. You'll find the answers to all your questions on the RANE FPE 13 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

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RANE OPERATING / SERVICE MANUAL FPE 13 PARAMETRIC EQUALIZER

QUICK START

No one likes to read manuals. Everyone likes to plug in and turn on. That's usually OK, and with a very few exceptions, damage is unlikely to result from such procedures with the FPE 13. If you are using the FPE 13 in an insert loop of a mixer, hook-up is extremely easy. Simply connect them together using a single stereo cable (1/4" TRS) between the mixer's insert loop and the FPE 13's PATCH I/O jack. This jack is wired for the tip-lead, ring-return convention used by mixer manufacturers.

Anyone familiar with other parametric equalizers will find this one very similar. One word of caution: the **FREQ range** switches can drastically change the center frequency of a given filter. A range of 10Hz to 20kHz may be achieved with the proper operation of the switches and the **FREQ sweep** control. If full boost is applied with a filter **LEVEL** control and a change is made in the setting of the **FREQ range** switch, disastrous results may occur. **BE CAREFUL.**

To operate the filters, set the range switch for the desired multiple frequency band, set the **BW** (bandwidth) control for the desired bandwidth and then boost or cut the desired amount using the filter **LEVEL** control.

Never connect anything except an APPROVED RANE POWER SUPPLY TO THE THING THAT LOOKS LIKE A TELEPHONE JACK ON THE REAR OF THE FPE 13. This is an AC input and requires special attention if you do not have an operational power supply **exactly** like the one that was originally packed with your unit. See the full explanation of the power supply requirements elsewhere in this manual.

SYSTEM CONNECTION

When connecting the FPE 13 to other components in your system for the first time, *leave the power supply for last.* This will give you a chance to make mistakes and correct them before any damage is done to your fragile speakers, ears and nerves.

INPUTS on the FPE 13 are balanced. This means that standard 3-pin (XLR) connectors on the ends of any good quality cable will work well between your other signal processing and amplification gear. As with all Rane products, pin 2 is used for "hot" or "+" signal polarity, pin 3 is "return" or "-" and pin 1 is signal ground. If unbalanced operation is required, wire your connector so that pins 1 and 3 are shorted together and drive your unbalanced signal into pin 2. Then use the combination of 1 and 3 for signal ground/return. You may use either pin 1 or case for shield ground. (See Rane Note 110 for further information on this subject).

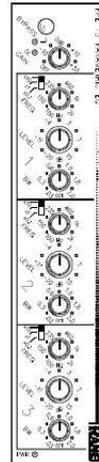
OUTPUTS. The FPE 13's Outputs are balanced as well. Again, pin 2 is hot and pin 3 is not. Pin 1 is signal ground. True balanced operation requires only the use of pins 2 and 3 for signal and either case ground (chassis) or pin 1 signal ground for shielding. If unbalanced output is your preference, use pin 2 as signal and pin 1 as return. Use case ground for shield. Again, have a look at Rane Note 110 for more detail.

EXPANDING the Inputs and Outputs has been accommodated with 1/4" jacks whose tip is connected to pin 2 of the 3-pin connectors, ring is connected to pin 3 and sleeve is connected to pin 1. These 1/4" jacks may be used for primary Inputs and Outputs should you wish to do so.

These connectors may also be used for daisy-chaining the Inputs so more than one processor can be driven from a single source, but only one is an Input; they do not sum. The second Output connector may be used to drive a second processor or amplifier without special cabling.

PATCH I/O to channel inserts on most mixers has been made very simple. Connecting a shielded stereo tip-ring-sleeve (TRS) cable between the FPE 13's PATCH I/O and a TRS insert on your console implements this feature.

SIGNAL LEVELS applied to the FPE 13 may cover a broad dynamic range. This device has been optimized to operate perfectly with all signal processing and amplification gear. The only signal level problems encountered will be with very low level sources, such as microphones. Do not directly connect mic levels into the FPE 13. Use a mic preamp first.



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Manual abstract:

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PATCH I/O to channel inserts on most mixers has been made very simple. Connecting a shielded stereo tip-ringsleeve (TRS) cable between the FPE 13's PATCH I/O and a TRS insert on your console implements this feature. **SIGNAL LEVELS** applied to the FPE 13 may cover a broad dynamic range. This device has been optimized to operate perfectly with all signal processing and amplification gear. The only signal level problems encountered will be with very low level sources, such as microphones. Do not directly connect mic levels into the FPE 13. Use a mic preamp first. **FRONT PANEL DESCRIPTION 1. OVERALL BYPASS SWITCH & INDICATOR.** This pushbutton switch activates the "hard-wire" bypass function.

When in its position, all three pins of the Input connector(s) are directly connected to the same pins on the Output connector(s) and the red LED lights. Engaging this switch converts the FPE 13 to a relatively expensive patch cord with pretty lights. **2. MASTER OVERLOAD INDICATOR.** This red LED illuminates whenever the input, output, or any of the three parametric filters exceeds a level of 4dB below clipping. Occasional flickering is normal; however, it should not be allowed to light steadily. **3. INPUT GAIN CONTROL.** This rotary control increases INPUT gain as it is rotated clockwise. Its range is from OFF at full CCW rotation to +20dB at full CW.

4. FREQUENCY RANGE SWITCH. The calibrations on this three position switch indicate the factor by which the frequency calibrations of the Frequency sweep control (5) should be multiplied. For instance, if the range switch is in the "x0.1" position and the sweep knob is at 460, then the actual center frequency of the filter is 46Hz. The proper operation of this switch in conjunction with the sweep control yields a range of 10Hz to 20kHz. **5. FREQUENCY SWEEP CONTROL.** @@@@6. **FILTER LEVEL CONTROL.**

@@@@@7. **FILTER BANDWIDTH CONTROL.** @.03 octave (1/30 octave) will yield the narrowest coverage. @@@@8. **POWER LIGHT.** @@@@3-pin INPUT Connector. Pin 2 is positive, pin 3 is negative and pin 1 is signal ground. For unbalanced operation, use pin 2 as hot and pin 1 as return. 2.

INPUT Expand Connector. @. Tip is positive, Ring is negative and Sleeve is signal ground. 3. Terminal Strip INPUT and OUTPUT. @. Used for primary Inputs and Outputs or additional patch connections.

Use #6 spades. 4. OUTPUT Expand Connector. @. As before, Tip is hot, Ring is not and Sleeve is signal ground. 5.

3-pin OUTPUT Connector. Pin 2 is positive, pin 3 is negative and pin 1 is signal ground. For unbalanced operation, do not short any pins to any others. @. Pin 3 should be left disconnected. @@@@6. PATCH I/O Connector. @@@@These are not summing inputs. Only one at a time may be used. 7. GROUND LIFT Switch.

@@Normally, this switch should be in the LIFT position. @@We realize a scientific explanation would be helpful, unfortunately science doesn't have enough to do with it. If you are tempted to try moving this switch with your power amplifiers turned on and up, don't be. Always turn your amplifier levels down before changing your grounds around and then bring them up slowly. Put a speaker re-coner out of work today! 8. Remote Power Supply Input. The unit is supplied from the factory with a Model RS 1 Remote Power Supply suitable for connection to this input jack. The power requirements of the unit call for an 18-24 volt AC center-tapped transformer only. It is not a telephone jack. Never use a power supply other than the one supplied or a replacement approved by Rane Corporation.

Using any other type of supply may damage the unit and void the warranty. Two years parts and labor is worth safeguarding, don't you think? 9. Chassis Ground Point. A 6-32 threaded hole used for chassis grounding purposes. See the CHASSIS GROUNDING note on the last page for details.

OPERATING INSTRUCTIONS Before attempting any equalization of audio with the FPE 13, it is important to optimize the Input GAIN control setting. Improper gain distribution is a common cause of headroom loss in audio systems. The FPE 13 provides you with an overall BYPASS switch & indicator as well as an OL (overload) LED as useful tools for optimizing gain set-up. The BYPASS switch is most useful for making A-B comparisons, i.



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e.

, comparing equalized (Bypass out) versus unequalized (Bypass in) sound. To be able to do this freely, without danger of system damage, requires you to set the level through the FPE 13 to approximately unity. Failure to do so can produce alarming results. The gain range of the FPE 13 goes all the way from Off to +20dB. Quite respectable--and enough rope to hang yourself. Since the FPE 13 is always unity gain in Bypass, if you add or reduce Gain (beyond EQ make-up gain) the level differences between Bypass in/out can be startling. Therefore you want to set the GAIN control for equal in/out loudness levels. To get started, make these initial set-up adjustments: BYPASS Switch "In" (= bypassed condition = red LED on). GAIN Control Center-Detent Position (unity gain spot). (3) LEVEL Controls Center-Detent Positions (0dB boost/cut).

Next apply a signal to the system. There will be no system gain change because the FPE 13 is in Bypass. Check the OL indicator to be sure it is not lit. If the OL LED is on, turn down the GAIN control until it goes out. Note, however, that the FPE 13 will no longer have unity gain when you switch it out of Bypass. If the OL LED is not lit, then the center detent position of the GAIN control is the ideal place to start. Do not increase the gain above this point until you do enough cutting with the EQ controls to warrant adding make-up gain. Use the BYPASS switch to set equal loudness. @@@@FEEDBACK may be controlled nicely with a device such as the FPE 13. @@@@With the FPE 13's overlapping bands, you never have this problem.

A good way to find them is to set the bandwidth for about 1/2-octave, the LEVEL control to full cut, then sweep around with the FREQUENCY knob until you find the first culprit. Once you center on the ring frequency, reduce the amount of cut to a level just below where the feedback comes back. Then reduce the BandWidth to a point where the feedback stays dead and the sound quality comes back to life. Something between 1/30 octave and 1/3 octave usually does the trick. TONE CONTOURING is accomplished with the FPE 13 mainly by ear.

This you know how to do. Be careful, though, not to introduce too much boost to the upper bass area to pr.



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