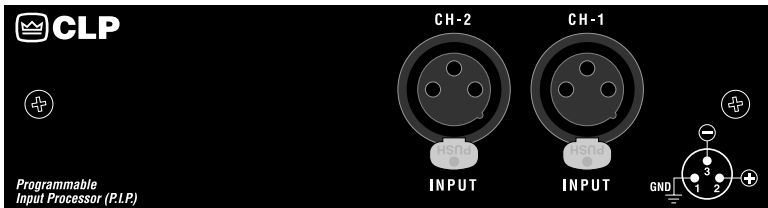


# P.I.P.-CLP

## REFERENCE MANUAL



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### Obtaining Other Language Versions:

To obtain information in another language about the use of this product, please contact your local Crown Distributor. If you need assistance locating your local distributor, please contact Crown at 574-294-8200.

**Note:** The information provided in this manual was deemed accurate as of the publication date. However, updates to this information may have occurred. To obtain the latest version of this manual, please visit the Crown website at [www.crownaudio.com](http://www.crownaudio.com).



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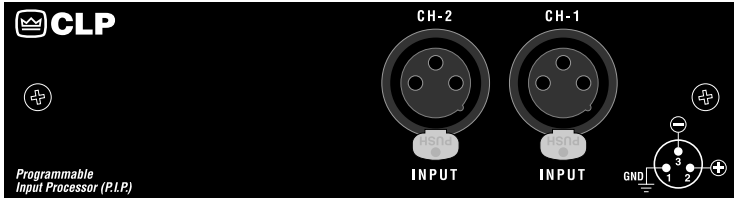


Fig. 1 The P.I.P.-CLP

## 1 Welcome

Thank you for purchasing the Crown P.I.P.<sup>®</sup>-CLP accessory. PIP™ modules are designed to install easily into the back panel of many Crown amplifiers. PIP stands for “Programmable Input Processor.” Their versatile features expand the capabilities of your amplifier and enable you to customize it for your particular needs.

The P.I.P.-CLP is designed to detect and reduce overload in the output stages of Crown *Com-Tech*,<sup>®</sup> *Macro-Tech*<sup>®</sup> and *Studio Reference*<sup>™</sup> amplifiers. As the amplifier output reaches the clipping threshold, an internal error signal activates the P.I.P.-CLP which reduces the input gain of the amplifier at a fast yet audibly undetectable rate. This feature provides an additional 13 dB of input signal headroom, making it virtually impossible to overload the amplifier. By following the simple installa-

tion instructions in this manual, you will expand your amplifier to include these capabilities.

### Specifications

**Connectors:** Two female XLR inputs; pin 1 is ground, pin 2 is positive (+) and pin 3 is negative (-).

**Signal-to-Noise:** -85 dB (referenced to 0.775 volts) equivalent input noise from 20 Hz to 20 kHz.

**Frequency Response:** Flat  $\pm 0.2$  dB from 20 Hz to 20 kHz.

**Input Impedance (Nominal):** 20 k ohms balanced and 10 k ohms unbalanced.

**Limiting Action:** Range of limiter action is restricted to 13 dB (nominal). Threshold is set to the point of amplifier overload. Compression attack time is 0.35 milliseconds; decay time is 160 milliseconds.

## 2 Installation

You may need a Phillips screwdriver to remove the existing PIP module or panel from your amplifier.



**CAUTION:** Before connecting this or any PIP to your amplifier, it is important to turn the amplifier's level controls down, turn it off and remove the AC power. Don't touch the circuitry. Even though the amplifier is off, there could still be enough energy remaining to cause electric shock.

1. Turn down the level controls (full counterclockwise), turn off the amplifier and unplug it from the AC power source.
2. Remove the existing PIP module or panel (two screws). For *PIP2™* amplifiers, this may involve disconnecting the PIP from a PIP2 input adaptor (see Figures 2.2 and 2.3). If a PIP2 input adaptor is already present, do not remove the ribbon cables from the

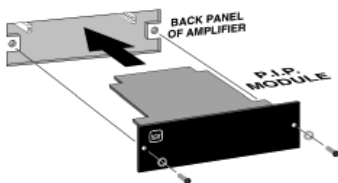


Fig. 2.1 Installation into a Standard PIP Amplifier

adapter. Otherwise you will have to reconnect them in the next step.

3. *Standard PIP Amplifiers:* Align the edges of the P.I.P.-CLP in the PIP card rails and firmly push the unit in until it is seated against the mounting bracket (see Figure 2.3).

*PIP2 Amplifiers\*:* (Requires a PIP2 input adaptor, Crown part number Q43528-1.) Connect the PIP2 input adaptor

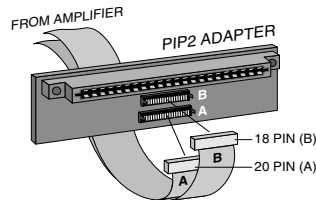


Fig. 2.2 PIP2 Input Adapter Connection

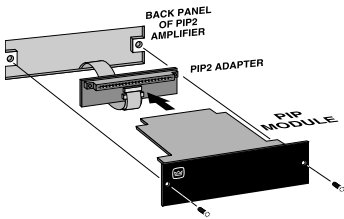
to the two input cables of the amplifier (see Figure 2.2). Notice that the PIP2 input adaptor should be positioned with the PIP edge connector on top and facing away from the amplifier. The 20-pin cable (A) is connected first, then the 18-pin cable (B) is connected. Both ribbon cables should extend below the PIP2 input adapter.

\* Note: The P.I.P.-CLP is not compatible with Crown CTs amplifiers.

Next, insert the edge connector of the P.I.P.-CLP into the PIP2 input adapter (see Figure 2.3) and insert the assembly into the PIP opening in the back of the amplifier.

4. Tighten the two PIP mounting thumbscrews.
5. Reconnect input wiring.
6. Plug in the amplifier and turn it on. Adjust its level controls to a desired setting.

Do not tamper with the circuitry. Circuit changes made by unauthorized personnel, or unauthorized circuit modifications, are not allowed.



*Fig. 2.3 Installation into a PIP2 Amplifier*

**CAUTION:** If your amplifier is equipped with  $\frac{1}{4}$ -inch phone jacks on the back panel, do not connect input signals to them while the P.I.P.-CLP is installed. Input signals connected to the phone jacks will be altered by the output circuitry of the P.I.P.-CLP and result in a distorted signal.

Remember: Crown is not liable for any damage resulting from over-driving other components in your sound system.

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### 3 Optional Modifications

Some amplifiers are perceived to be louder than others while they actually deliver equal or less power. Such an amplifier is typically set up to clip the input signal, or it uses built-in compressors that reduce dynamic range and increase average signal levels. This is fine if it's what you want. But if you don't want it and you can't get rid of it, it's a problem. This is why Crown amplifiers are designed to deliver maximum power without distortion or hidden compressors to make them sound louder.

But what if you prefer the sound and apparent loudness of a compressed audio signal? In this

case, the P.I.P.-CLP can be modified to simulate the same effect. Normally, the P.I.P.-CLP protects loudspeakers from damage that can result from a clipped signal. For maximum protection, the PIP's default configuration provides super-fast attack and decay times with an infinite compression ratio.

Modifications to the PIP can slow the attack and decay times to allow some clipping, which many listeners **perceive** as a louder sound. (This short-term clipping does not damage loudspeakers.)

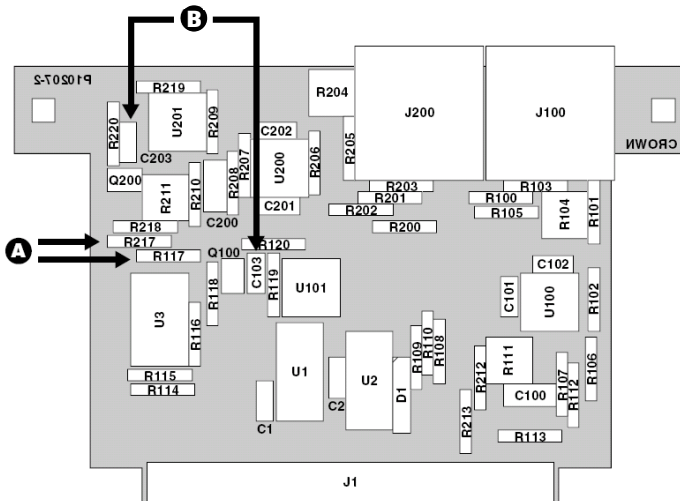


Fig. 3 Resistor and Capacitor Locations for Modifications A and B

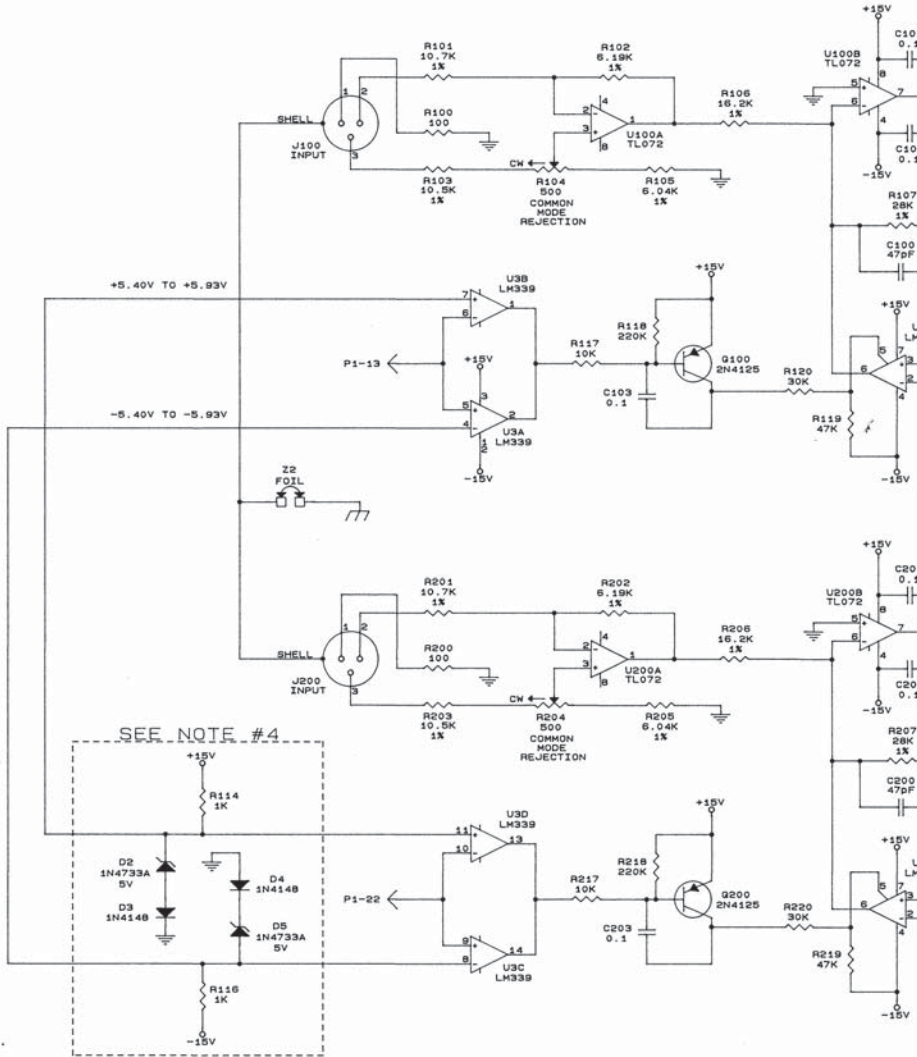
There are two possible modifications; the first increases the attack time while the second doubles both attack and decay times.

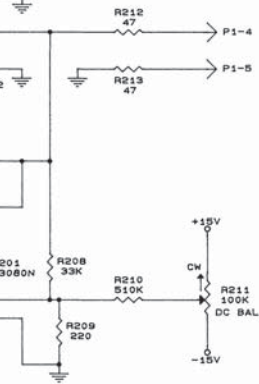
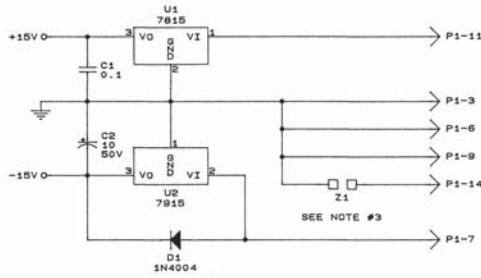
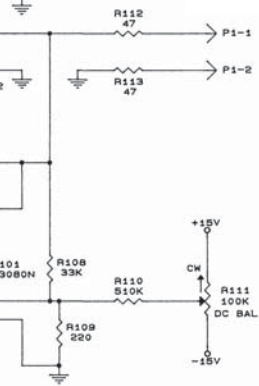
**Modification A** will increase the attack time from the original 0.35 milliseconds to 5 milliseconds. It does not affect the original decay time which is 160 milliseconds.

1. Replace the two 10 k ohm resistors marked R117 and R217 with 121 k ohm resistors.

**Modification B** will further increase the attack time beyond that produced by modification A, and will also increase the decay time. If you choose to make modification B, you must also make modification A. Together, modifications A and B produce an attack time of 10 milliseconds and a decay time of 320 milliseconds.

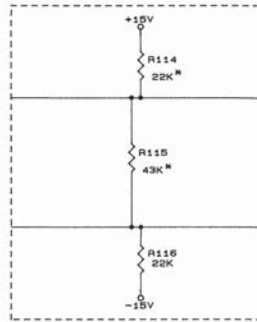
1. Perform modification A.
2. Replace the two 0.1  $\mu\text{f}$  capacitors C103 and C203 with 0.22  $\mu\text{f}$  capacitors.





NOTES :

1. ALL RESISTORS ARE IN OHMS, 1/4W, 5% UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
3. JUMPER FOR USE WITH AMPLIFIERS BUILT PRIOR TO 5-1-86.
4. CIRCUIT USED BEFORE JANUARY 1992 SHOWN BELOW.



\* A DIFFERENT VALUE MAY BE SELECTED AT TEST.

5. GROUND REFERENCES INCLUDE:



6. MODULE AND P.C. BOARD FOR THIS SCHEMATIC ARE G42825-2 / P10229-6.

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Rev. G





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