

## QUICK START

Realizing that in most areas there are laws against reading owners manuals, and that reading them under the blankets at night with a flashlight makes you feel stupid, we therefore provide this brief, yet informative, description of how to use the SM 26 just in case your batteries are low and your mother is about to come in the room.

To achieve a quick understanding of the SM 26, think of it as a six channel mixer with faders and pans only. Or think of it as a 2-to-6 channel splitter with output level controls and a mix knob (to control how much of which input goes to which output). If you get that, you may stop here as long as you know how to hook up the power supply.

As a six channel mixer, MONO IN 1 through 6 may be placed on the Right or Left bus or both, in any amount. The respective LEVEL knobs on the front of the unit serve as the mixer's faders, the adjacent PAN controls place the channel's signal into the stereo field. As an effects mixer or line level expander for a larger mixer, set up the LEVELS and adjust the PANS. The MASTER OUTPUT LEVEL adjusts the overall level of the mix at the Master Outputs.

As a splitter, place one or both input signals into the LEFT and/or RIGHT inputs. Select the input(s) to be placed at each of the six MONO OUTs by rotating the MIX/PAN control to the proper position. Set the individual CHANNEL LEVEL controls for proper output level. The MASTER INPUT LEVEL control on the front adjusts both Right and Left Input signal levels together.

**NEVER CONNECT ANYTHING EXCEPT AN RS 1 OR OTHER APPROVED RANE AC POWER SUPPLY TO THE RED THING THAT LOOKS LIKE A TELEPHONE JACK ON THE REAR OF THE SM 26.** This is an AC input and requires some 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.

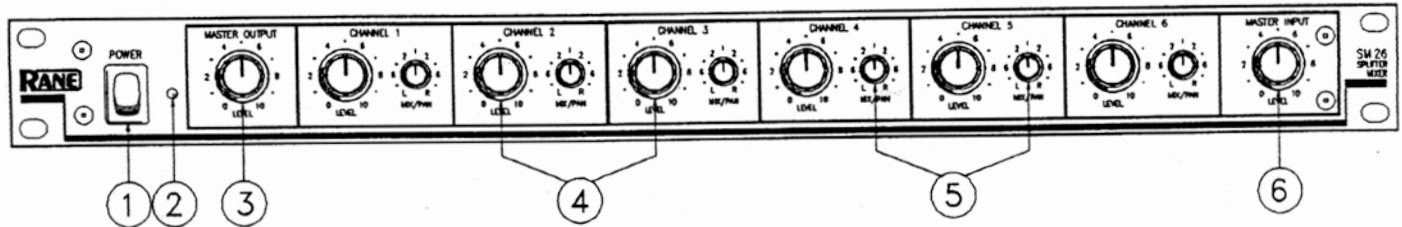
## SYSTEM CONNECTION

When connecting the SM 26 to other components in your system for the first time, **LEAVE THE POWER SUPPLY FOR LAST.** This gives you a chance to make mistakes and correct them before damage is done to anything fragile.

As you have no doubt noticed, all inputs and outputs on the SM 26's rear panel are 1/4" connectors. The inputs are active balanced or unbalanced, while the outputs are active unbalanced only. All of these are Tip-Ring-Sleeve (TRS) jacks which allow the flexibility of connecting in either a balanced or unbalanced fashion. If unbalanced operation is your preference, the simplest way to accomplish this is through the use of tip and sleeve (what some call mono) 1/4" connectors. The ring is not essential unless balanced operation is required. You should be aware that if you are running unbalanced and using TRS connectors with both ring and tip, the ring and sleeve must be shorted together. Failure to do so on the inputs results in a gain loss of 6dB. Failure to do so on the outputs results in loud hum, since the signal ground is hooked to the ring. (This is known as a floating unbalanced output.)

Balanced operation requires that TRS plugs be used. The tip is hot (+), the ring is return (-) and the sleeve is ground. Rane Note 110 (included with your original shipment) contains some great pictures which aid your interconnect ventures. Consult this handy document to make sure you have done the job properly. You will note the drawings indicate that shield be connected only at one end and that balanced operation does not require the use of a ground conductor. The audio signal is contained between the tip and ring. It does not require three conductors to pass audio from one component to another, any more than it does to operate a light bulb. Same principle, less heat. (But equally brilliant!) Connecting too many grounds between components increases the chances of hum and buzz in your finished system.

## FRONT PANEL DESCRIPTION



1. **POWER SWITCH.** Two guesses .....

2. **POWER INDICATOR.** When this yellow LED is lit, the SM 26 is ready to go.

3. **MASTER OUTPUT LEVEL CONTROL.** This controls the amount of signal at the **MIX OUTPUT** jacks. It does not affect the level of any of the six **MONO OUTs**. This control changes the gain of the output stages. This allows an increase in headroom to eliminate overloading due to excessive combined signal from one or more inputs. Range of gain is from Off to 0dB (unity). Refer to the block diagram in the **SM 26 Data Sheet** and/or schematics

4. **MONO INPUT LEVEL CONTROL.** Each of these controls the level of signal through that particular channel. When fed from the **MONO IN** jack, each stage has a gain range from Off to +12dB minimum, allowing level matching of -10dBV equipment to +4dBu gear. When fed via the **LEFT & RIGHT INPUT(s)**, these **CHANNEL LEVEL** controls automatically limit to a maximum of unity gain to accommodate the +12dB available from the Left & Right Input gain stages.

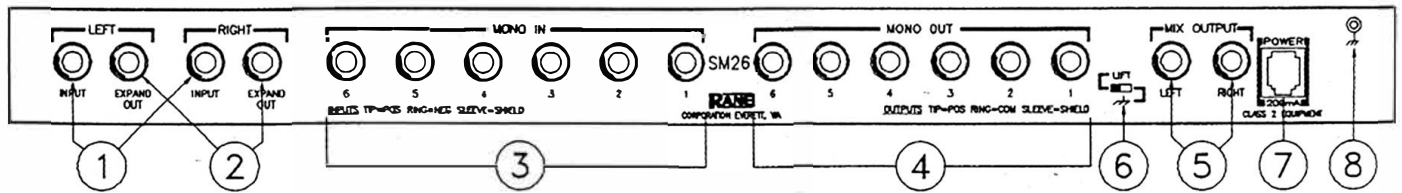
5. **MIX/PAN CONTROLS.** These serve two different functions:

**MIX:** When used as a **SPLITTER**, this controls the mix of Left and Right master input program to each Mono Channel output.

**PAN:** When used as a **MIXER**, this control pans the Mono Channel input between the **LEFT** and **RIGHT MIX OUTPUTS**.

6. **MASTER INPUT LEVEL CONTROL.** This sets the gain of the Left & Right Master input stages, with a range of Off to +12dB. In the splitting mode, this controls the level of all Mono Channel outputs at once (i.e., those which do not have a separate input).

## REAR PANEL DESCRIPTION



**1. LEFT AND RIGHT MASTER INPUTS.** These are automatic balanced or unbalanced Tip-Ring-Sleeve (TRS) 1/4" inputs. These inputs feed all six MONO OUTs when all MONO INs are not used. Connecting to individual MONO INs disconnects that channel from these inputs (refer to the **Block Diagram** found on the **SM 26 Data Sheet**). For unbalanced operation use a standard mono 1/4" plug; for balanced operation use a stereo 1/4" plug wired as follows:

TIP is signal hot (connect to Pin 2 on a 3-pin connector).

RING is signal ground (pin 3 in a 3-pin connector).

SLEEVE is case or chassis ground (case on a 3-pin connector).

**2. LEFT AND RIGHT EXPAND OUTPUTS.** These 1/4" TRS jacks are connected in parallel with the Master **LEFT & RIGHT INPUT** jacks, allowing two or more SM 26s to be daisy-chained for multiple splitting. Simply connect these **EXPAND OUTPUTS** to the **LEFT & RIGHT INPUTS** of another SM 26; there is no limit to the number of expansions possible with the SM 26.

**NOTE:** These Expand Outputs are **NOT** buffered from the Master Inputs. Therefore it is not possible to mix both balanced and unbalanced lines in the same channel between several units: once the ring and sleeve are shorted anywhere in the chain (by using a mono plug) the entire line becomes unbalanced.

**3. MONO INPUTS.** These are TRS 1/4" jacks which accept either balanced or unbalanced mono signals. These are switching jacks which automatically bypass the Master **LEFT & RIGHT INPUTS** whenever a plug is inserted (see the **Block Diagram**).

**4. MONO OUTPUTS.** These 1/4" TRS jacks deliver either a conventional unbalanced output (use mono cords), or a floating unbalanced output (use stereo cords). The floating unbalanced output is preferred for all balanced inputs.

**5. LEFT & RIGHT MIX OUTPUTS.** These floating, or grounded, unbalanced TRS 1/4" outputs are controlled by the **MASTER OUTPUT LEVEL** control. They are fed either by the Master **LEFT & RIGHT INPUTS** (respectively) or by any of the six **MONO INPUTS**, or a combination of both (Rane Note 108 helps).

**6. GROUND LIFT SWITCH.** This switch provides the ability to separate chassis ground and signal ground. Normally, this switch should be in the **LIFT** position. In some circumstances it may be necessary to move it to the opposite position to eliminate stubborn hum and buzz problems. We realize a scientific explanation of this switch would be helpful, unfortunately science doesn't seem to have much to do with it.

If you are tempted to try moving this switch with your power amplifiers turned on or turned up, **DON'T BE. ALWAYS TURN YOUR AMPLIFIER LEVELS DOWN BEFORE CHANGING YOUR GROUNDS AROUND** and then bring them up slowly.

**7. REMOTE POWER SUPPLY INPUT.** The SM 26 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 SM 26 call for a 18-24 volt AC center-tapped transformer only.

**THIS IS NOT A DC INPUT. IT IS NOT A TELEPHONE JACK.**

**NEVER USE A POWER SUPPLY WITH YOUR SM 26 OTHER THAN THE ONE SUPPLIED OR A RANE APPROVED REPLACEMENT.**

**8. CHASSIS GROUND POINT.** A 6-32 threaded hole used for chassis grounding purposes. See **CHASSIS GROUNDING** note on the last page for details.

## OPERATING INSTRUCTIONS

Since numerous applications exist for the SM 26, no single set of operational procedures control its use. Rane Note 108 (included) explores the many configurations of the SM 26 in depth, and you should peruse it for applications information. The following tips post date Rane Note 108.

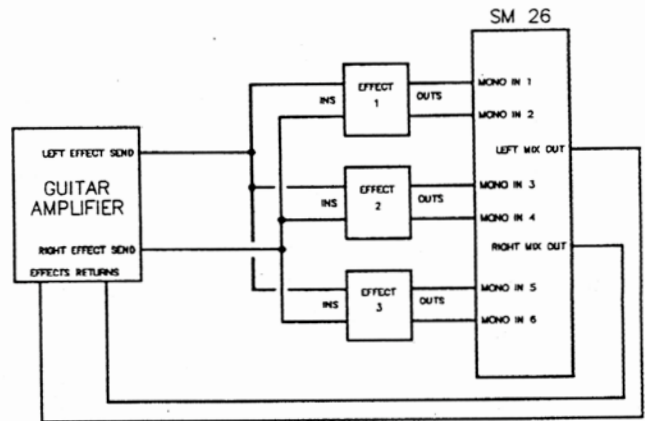
**GUITAR RACKS.** Looking at the diagrams to the right you see two ways to connect the output of a guitar amp to effects. The good way involves buying or building a cable that parallels all of the inputs of the effects so one amplifier output drives them all. This works and should cause no great difficulty if the output impedance of the amplifier is low. Outputs of 1k ohms or less should be able to drive as many effects devices as you would ever want. The best way uses one SM 26 as a splitter to actively split the signal into as many as six separate feeds (or three stereo) for the effects inputs. To mix all of the effects outputs back together, a second SM 26 connected as a mixer handles this nicely.

Many effects have mono inputs and stereo outputs. In this case, connect the Left and Right outputs of Effect 1 to **MONO IN** Channels 1 and 2 of the SM 26 respectively. Rotate the **MIX/PAN** control of Channel 1 all the way to the Left and the **MIX/PAN** of Channel 2 all the way to the Right. This preserves the mix of the effects stereo output and passes it on to the **LEFT & RIGHT MIX OUTPUTS** of the SM 26. Continue with Channels 3 & 4 for the second effect and Channels 5 & 6 for the last effect. Set the **CHANNEL LEVEL** controls of the pairs of channels to the same levels to preserve the intended mix of the effect.

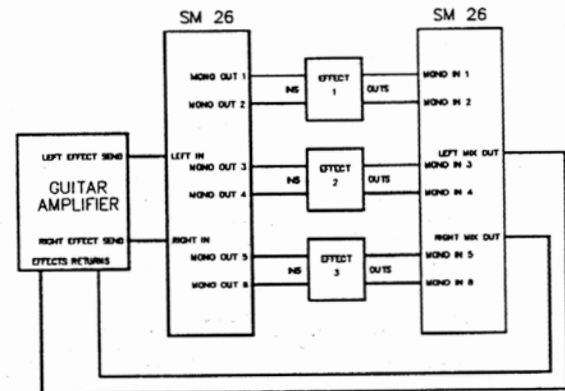
**KEYBOARD MIXING.** A stereo or mono keyboard connects to the SM 26 in the same way as a stereo or mono effects unit. Up to three stereo or six mono keyboards may be mixed down with one SM 26.

**POWER SUPPLY.** As noted elsewhere in this manual, **NEVER USE A POWER SUPPLY WITH YOUR SM 26 OTHER THAN ONE SUPPLIED WITH THE UNIT OR AN EXACT REPLACEMENT OBTAINED FROM RANE CORPORATION.** The SM 26's power supply is an AC supply, which is a 18 - 24 volt center tapped transformer capable of supplying the current demanded by this product. Using any other type of supply may damage the mixer and void the warranty.

For further information, application hints, and detailed specifications, please see the data sheet.



**The good way**



**The best way**

### CHASSIS GROUNDING

The SM 26 is supplied with an internally located ground-lift switch. The unit is shipped with this switch in the "grounded" position, tying circuit ground to chassis ground. If after hooking up your system it exhibits excessive hum or buzzing, there is an incompatibility in the grounding configuration between units somewhere. Your mission, should you accept it, is to discover how your particular system wants to be grounded. Here are some things to try:

1. Try combinations of lifting grounds on units that are supplied with ground lift switches or links.
2. If your equipment is in a rack, verify that all chassis are tied to a good earth ground, either through the line cord grounding pin or the rack screws to another grounded chassis.
3. Units with outboard power supplies, such as the SM 26, do not ground the chassis through the line cord. Make sure that these units are grounded either to another chassis which is earth grounded, or directly to the grounding screw on an AC outlet cover by means of a wire connected to a screw on the chassis with a star washer to guarantee proper contact.

Please refer to Rane Note 110 (supplied with your SM 26 and available on request at no charge if you lost your first one) for further information on system grounding.

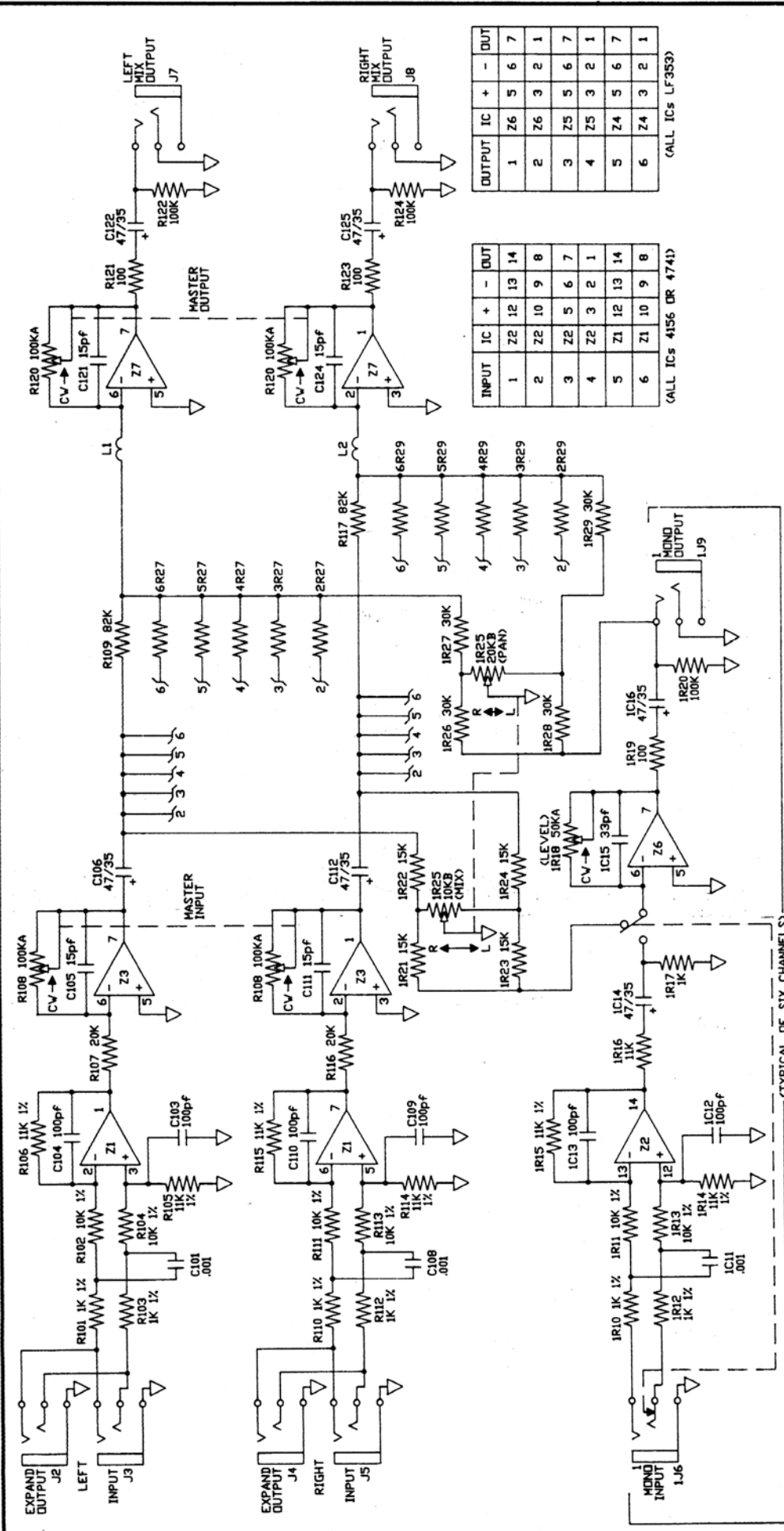


TITLE  
SCHEMATIC  
SM 26 RAP

Corp. 10602 47th Avenue West, Everett  
VA 98204-3400 (206) 355-6000

DRW. NO.  
521-059

REV.  
A



INPUT IC	+	-	OUT
1	Z2	12	13 14
2	Z2	10	9 8
3	Z2	5	6 7
4	Z2	3	2 1
5	Z1	12	13 14
6	Z1	10	9 8

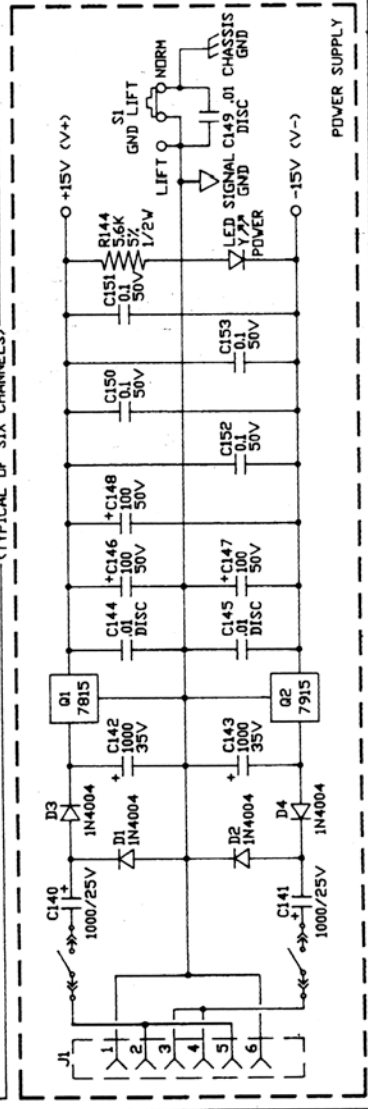
(CALL ICs 4156 OR 4741)

OUTPUT IC	+	-	OUT
1	Z6	5	6 7
2	Z6	3	2 1
3	Z5	5	6 7
4	Z5	3	2 1
5	Z4	5	6 7
6	Z4	3	2 1

(CALL ICs LF353)

NOTES (UNLESS OTHERWISE NOTED)

- ALL RES 1/4W, 1% METAL FILM 5% CARBON FILM.
- POWER SUPPLY CONNECTIONS
- ALL SVCS SHOWN IN THEIR 'OUT' OR 'OFF' POSITION
- Z3-Z7 LM933 OR 4570.



REVISIONS

REV. A	ACTION	DATE	DATE	CHECKED	A.	CLAXTON	DATE	ISAUG89	SHEET	1	OF	1	DO NOT SCALE DRAWING

DATE 24AUG89 APPROVED BPH

