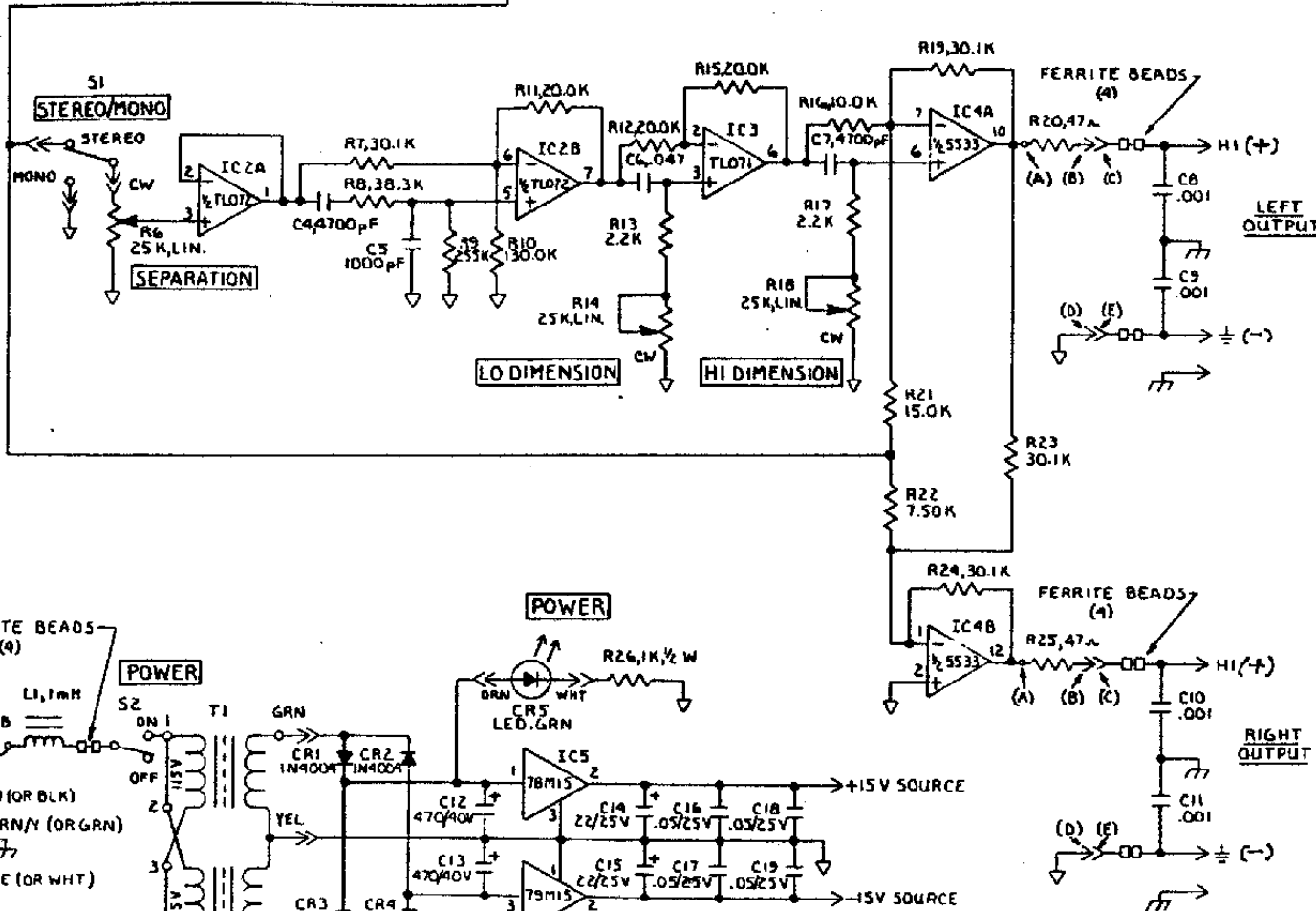
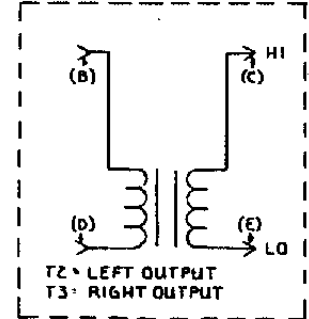


NOTE - SWITCH S1 (STEREO/MONO) MAY BE REPLACED BY JUMPER JP3 IF REQUIRED.
- RESISTOR VALUES SELECTED AS REQUIRED.

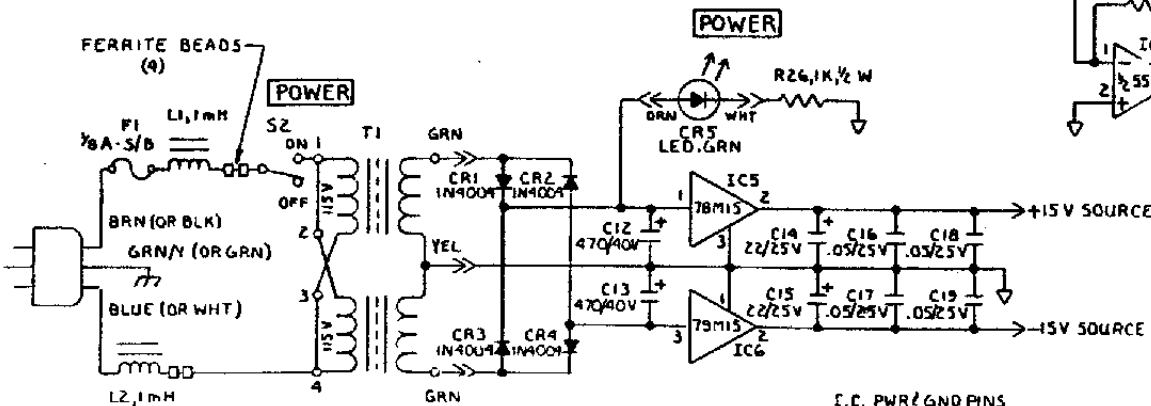
23



OPTIONAL BALANCED OUTPUT (2P4)



NOTE: RESISTORS R20 & R25 ARE TO BE REMOVED.



I.C. PWR/GND PINS

DEVICE	+V	-V	GND
TLO72	8	4	-
5533	11	4	-
TLO71	7	4	-

REF. DESIGNATORS

ITEM	LAST USED	NOT USED	ITEM	LAST USED	NOT USED
C	21	-	L	4	-
CR	5	-	R	29	-
F	1	-	S	2	-
IC	6	-	T	3	-

2.) ALL CAPACITANCE IS IN MICROFARADS.

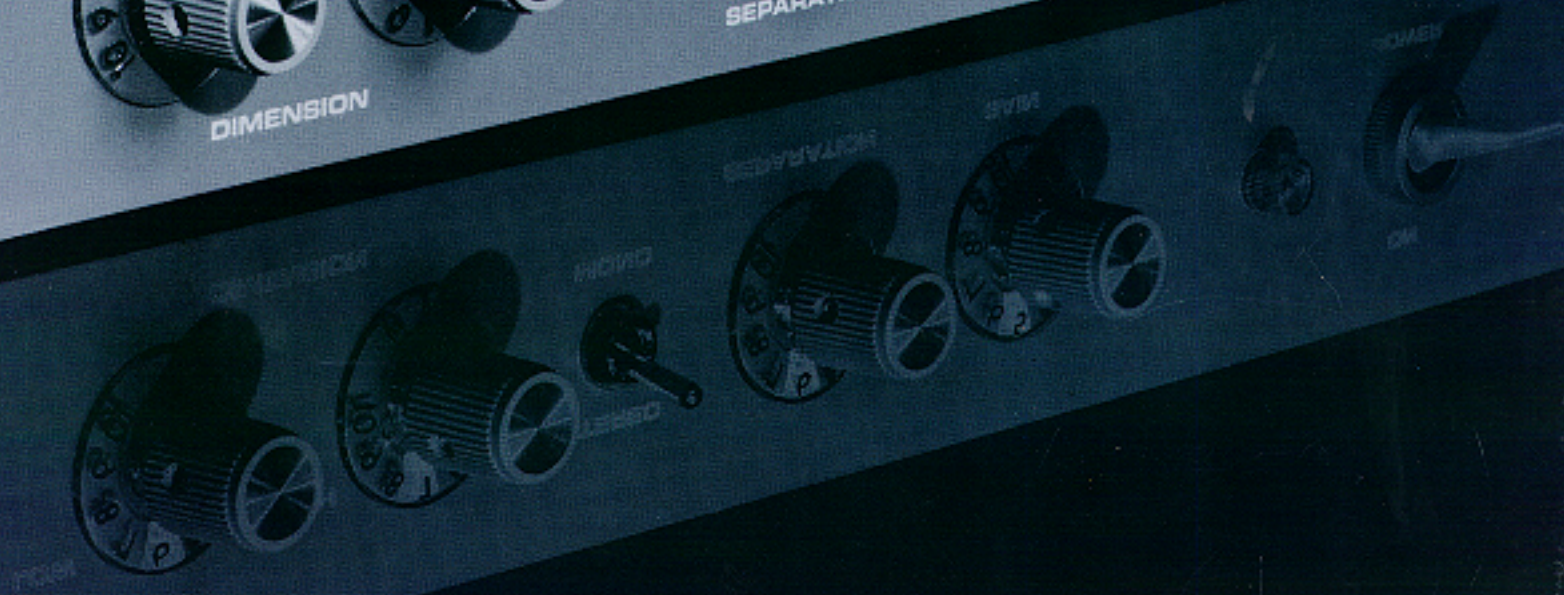
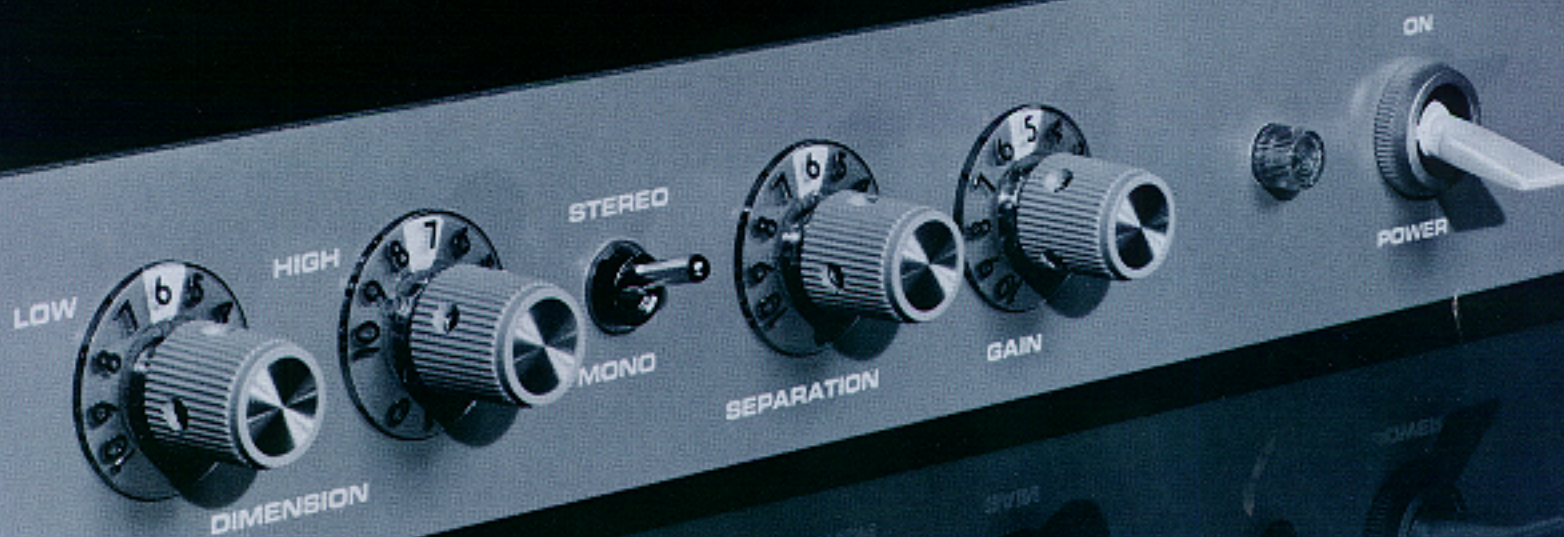
NOTES: 1.) ALL RESISTORS ARE 1/8 WATT, 1%, MF (RN5SD).
(UNLESS OTHERWISE SPECIFIED)

orban Orban Associates Inc.

TITLE: SCHEMATIC
MODEL 245F
60047-000-01

The Orban 245F Stereo Synthesizer

Convincing pseudo-stereo from mono sources.



Performance Highlights

- Creates a convincing pseudo-stereo effect from any mono source
- Total mono/stereo compatibility for FM broadcast applications
- Patented design offers seductive space and depth enhancement

- Saves tracks in multi-track recording situations
- Allows for stereo cart transfers with no phasing problems
- Simple and easy-to-use

Description

The Orban Model 245F Stereo Synthesizer has been designed to take any mono signal and create lifelike pseudo-stereo. Unlike many other techniques, the patented Orban stereo synthesis technique causes no change in spectral balance, does not blur the transient definition, and adds not the slightest audible noise or distortion to the mono original. The stereo output sums back to the original mono for total mono/stereo compatibility. And the simple controls adjust in seconds to create an optimum stereo effect from any mono original. The major new features added to the 245F are a standard active balanced input and provisions for mounting optional output transformers to provide balanced outputs. Enhanced RFI suppression is provided on both audio and power leads. In addition, front-panel cosmetics have been revised.

How It works

The Orban Stereo Synthesizer creates a stereo effect by dividing the mono source signal into five frequency bands. Three of these bands are placed in one stereo output channel; the remaining two are placed in the other channel. The filters are synthesized so that the sum of the two output channels is identical to the mono input. In addition, the sum of the powers in the left and right output channels is equal to the power in the mono input signal, guaranteeing that the stereo will have the same perceived frequency balance as the mono source.

The bandcenters and bandwidths of the midrange bands are adjustable by means of two **dimension** controls, one controlling lower midrange and the other controlling upper midrange. These controls act like frequency-band panpots, and are used to get good left-right channel balance for a given piece of mono source material. With practice, adjustment takes no more than five or ten seconds for a given mono source.

Also provided is a **separation** control which adjusts the level of the stereo difference signal anywhere from zero to the same level as the sum signal. The control is useful for adjusting the audible separation, and also controls the vertical component on a stereo disc or the sub-channel modulation (and therefore the stereo and mono loudness) in FM stereo broadcasting. All controls can be adjusted freely throughout their range without fear of losing stereo/mono compatibility.

Recording Studio Applications Reissuing old mono material

The most obvious application for the Orban Stereo Synthesizer in the recording studio is the reissuing of old mono masters in pseudo-stereo. Because of mono compatibility, this can be done without offending those purists who

have been turned off by some of the more bizarre and tasteless pseudo-stereo efforts of the past.

In cutting discs from mono masters, there is no need to go through an added tape generation—the disc can be cut directly through the Stereo Synthesizer. **Dimensionally spreading single tracks in multi-track mixdowns**

No matter how many tracks are available on a multi-track recorder, there never seem to be enough. And the first thing to be sacrificed is usually stereo recording of material like drums, strings and horns. All is not lost—mono tracks can be spread in space in the mixdown through the use of the Stereo Synthesizer. Electric or electronic instruments like synthesizer, guitar and organ can be given a sense of space and depth. And the mono input of an echo chamber or artificial reverb generator can be spread in a lifelike way.

Cable TV and Satellite

The 245F is the ideal solution to providing a full-stereo format at the cable headend. When used in conjunction with FM multiplex systems, the 245F is a cost-effective way of providing FM stereo audio from cable audio. The unit can also be used with satellite systems for a similar purpose.

FM Broadcast Applications

Reducing stereo cart phase cancellation

Ever since the advent of the stereo tape cartridge machine, FM stereo broadcasters have been plagued with mono signal degradation due to phase shifts between the two stereo channels. The Orban Stereo Synthesizer can greatly alleviate this problem.

The phase cancellation problem arises because there are usually several frequencies in the high-frequency audio band where the left and right outputs from the stereo cart machine are 180° (or

odd multiples thereof) out of phase. At these frequencies, material having equal level on the left and right channels will totally cancel, and at frequencies close to the 180° frequencies, the mono sum will be greatly attenuated.

Because of its filters, the Stereo Synthesizer places most frequencies on the left and right channels with unequal levels. Therefore, even at frequencies where the cart machine is 180° out of phase, cancellation is greatly reduced and the mono sound is notably improved.

The 245F can either be used at the output of a mono cart machine to create a pseudo-stereo effect, or it can be used when transferring material to a stereo cart to reduce phase cancellation due to cart phase problems. In either case, the result is a convincing pseudo-stereo effect with no mono signal degradation.

Stereolizing old mono material, announce mikes, etc.

The Stereo Synthesizer is an ideal way to create a "total stereo" format for AM or FM stereo that includes old LP's, "golden oldies" 45's, agency spots, PSA's and commercials. This material can be recorded on automation tapes without danger of mono phase cancellation. And DJ announcements, live or recorded, can be processed, eliminating the gross inconvenience of stereo-miking the announcer.

orban

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San Francisco, CA 94107
(415) 957-1067
Telex: 17-1480

SPECIFICATIONS

Frequency Response of the Stereo Sum Signal:

± 1 dB (re mono input) 20-20,000Hz

Frequency Response of the Sum of the Right and Left Channel Powers:

± 1 dB (re mono power) 20-20,000 Hz

Total Harmonic Distortion: (+ 19 dBm, 20-20,000 Hz): Less than 0.1%; 0.02% typ.

Noise: (Unweighted, 20-20,000 Hz): less than -80 dBm; -83 dBm typ.

Available Gain: approximately 9 dB (MONO); 14 dB peak (STEREO)

Input: greater than 100 K ohms, balanced bridging. Absolute overload occurs at + 26dBm.

Output: approximately 47 ohms unbalanced. Will drive greater than + 19 dBm, 20-20,000 Hz into 500 ohms or higher load impedance. Optional transformer-balanced output available.

Input/Output Connector: Type 140-Y barrier strip (#5 screw)

Power Requirements: 115-230 volt 50-60 Hz AC, ± 10%, 2 VA. Supplied with "U-Ground" grounding-type plug to United States standards.

Mounting: requires 1 3/4" (4.5 cm) unit of vertical space in an EIA Standard 19" (48.3 cm) rack.

Shipping Weight: 7 pounds (3.2 kg)