I.R.T. ELECTRONICS PTY LTD
26 Hotham Parade, ARTARMON, N.S.W. 2064 Australia
Phone: (ISD Code 61) (02) 439 3744 Fax: (02) 439 7439 Telex: AA122130

AG-348

STEREO LINE-UP OSCILLATOR

8Ø2617

Ø5-11-1985

DESIGNED AND MANUFACTURED
IN AUSTRALIA

AG-348

STEREO LINE-UP OSCILLATOR

INSTRUCTION BOOK

W A R N I N G

OPERATION OF ELECTRONIC EQUIPMENT INVOLVES THE USE OF VOLTAGES AND CURRENTS WHICH MAY BE DANGEROUS TO HUMAN LIFE. OPERATING PERSONNEL SHOULD OBSERVE ALL SAFETY REGULATIONS. DO NOT CHANGE COMPONENTS OR MAKE ADJUSTMENTS INSIDE THE EQUIPMENT WITH POWER ON UNLESS PROPER PRECAUTIONS ARE OBSERVED. NOTE THAT UNDER CERTAIN CONDITIONS DANGEROUS POTENTIALS MAY EXIST IN SOME CIRCUITS EVEN THOUGH POWER CONTROLS ARE IN THE OFF POSITION.

GENERAL DESCRIPTION

The AG-348 is a Stereo Test Oscillator which generates a line-up signal for Stereo Audio circuits conforming to the recommendations of FACTS Operational Practice OP1Ø Issue 2 of August 1984. The signals generated by the AG-348 allow for the identification, and for the checking of phase relationship of the left and right channel signals of a stereo audio circuit.

The AG-348 generates a 1ØØØ Hz audio signal to both the left and right stereo outputs of the unit. A continuous signal is sourced to the left channel output, and a signal interrupted every 3 seconds for a period of Ø.25 second to the right channel output. The signals to the left and right channel outputs being sourced from the same 1ØØØ Hz oscillator thus holding the frequency and phase relationship constant.

This allows the left and right channel signals to be identified in a stereo audio circuit by the fact that the left channel will have continuous tone and the right channel interrupted tone. The phase relationship of the signals on a audio circuit carrying the AG-348 signals can be checked by a passive mixing of the left and right signals and observing the signal amplitude, if the signal level rises by 6dB during the 3 second period when signal is present on both channels they are in phase if they cancel they are out of phase.

The AG-348 is housed in an IRT single width plug in module which mounts in an IRT F-1ØØD rack mounting frame.

Output and power connections are made to a RB-68 rear assembly supplied as part of the AG-348. Output audio connections are to an AK-2Ø 2Ø pin connector block and power is connected to a XL series LINE connector.

Equipment Provided:-

AG-348 Stereo Line-Up Oscillator
Single Width slide Tray
RB-68 Rear assembly

Accesories Available

F-1ØØD	Module Mounting Frame
TME-1	Module Extender
RB-68	Rear Assembly
	Instruction Book

TECHNICAL DATA

OUTPUTS

Two each for the LEFT and RIGHT channels

Left Channel:	Continuos tone
Right Channel:	Interrupted tone On for 3 seconds Off for Ø.25 sec
Frequency:	1ØØØHz +/- 2ØHz
Impedance:	6ØØ ohm balanced circuit
Level:	Internally adjustable Range -4ØdBm to + 16dBm

Harmonic distortion: Less than Ø.Ø5% at +16dBm

Connections: 2Ø Pin (AK-2Ø) Terminal Block

POWER

Requirements:	24Øv AC 7VA
Connections:	XL Series LINE Connector

MECHANICAL

IRT Single width plug-in mudule mounting in an IRT F-1ØØD rack mounting frame

Dimensions: 43mm x 12Ømm x 37Ømm

CIRCUIT DESCRIPTION

The AG-348 circuitry consists of an oscillator stage whose output signal is split two ways, one via gain set potentiometer VR1 to a buffer amplifier and thence to the output amplifier for the LEFT channel output. The other via gain set potentiometer VR2 and transistor switch Q2 to a buffer amplifier and thence to the output amplifier for the RIGHT channel.

The oscillator stage U2 is an operational amplifier with positive feedback provided by a WIEN network to set the frequency of oscillation and negative feedback by thermistor RA1 and resistor R5 to set the gain of the amplifier at 3 as required for stable oscillation.

The signal from the oscillator stage is coupled to gain set potentiometers VR1 and VR2 before passing on to the LEFT and RIGHT output amplifier sections, this enables the output level of each output signal to be preset as required.

The LEFT channel output section consists of voltage amplifier U3 with a gain of 3 followed by two output amplifiers each composed of an operational amplifier with a current amplifier section consisting of a complementary pair of transistors. The amplifier comprising U5,Q3 and Q4 inverts the signal from the buffer amplifier U3 and the amplifier comprising U6,Q5 and Q6 passes the signal in phase with that at the output of U3. In this way a balanced signal source is provided to the output of the AG-348 via the 3ØØ ohms splitting resistors which set the output impedance.

The signal to the RIGHT channel output section is switched to the voltage amplifier U4 by FET switch Q2. Q2 is switched ON and OFF by the signal generated by U1 a dual monostable IC which is wired as an astable oscillator by feedback from one section to the other. The timing network of each section of U1 incorporates a potentiometer to allow the ON and OFF times of Q2 to be set as required, RV3 sets the ON time and RV4 sets the OFF time. Transistor Q1 translates the output voltage swing of U1 to the levels needed to switch Q2 ON and OFF. The timing of U1 the dual monostable IC is set to 3 seconds and Ø.25 second to set the RIGHT channel tone output sequence as required.

As with the LEFT output channel the RIGHT output channel consists of a buffer voltage amplifier followed by two output amplifiers one operated in the inverting mode and the other in the non-inverting mode. U7,Q7 and Q8 are wired as the inverting amplifier and U8,Q9 and Q1Ø are wired as the non-inverting amplifier. In this way the balanced signal required is sourced via the 3ØØ ohm splitting resistors to the output of the AG-348.

CIRCUIT DESCRIPTION

DC power to operate the AG-348 is provided by two IC regulated power supplies, comprising U9 and U1Ø and associated circuitry. The IC regulators set the unregulated voltages from the bridge rectifier circuits D9-D12 and D13-D16 at the +12 volts and the -12 volts required to operate the circuitry of the AG-348. T1 the power input transformer provides two 15v AC voltages to the bridge rectifier circuits.

INSTALLATION

The AG-348 is supplied with a slide tray, rear assembly and associated hardware, for mounting in a F-1ØØD frame.

Slide Tray

The slide is a shallow tray which supports the module in the frame. It is mounted on the front and rear cross members of the frame and is fixed in place with the steel clips (speed nut type) provided.

Rear Assembly

The rear assembly is mounted on the rear of the frame with the 4BA screws provided. Place the rear assembly on the frame and secure it loosely, using the screws provided with the rear assembly and the key provided with the F-1ØØD frame. Slide the equipment module into the frame using care to align the plug of the module and the socket of the rear assembly. The screws can now be tightened to secure the rear assembly in place, do not over tighten these screws, as excessive force will damage the thread in the mounting frame.

Output Signal Level

The level of the output signals from the AG-348 are set by RV1 and RV2, these are factory preset for an output level of +8dBm. To change these settings adjust RV1 to set the LEFT channel output and RV2 to adjust the RIGHT channel output.

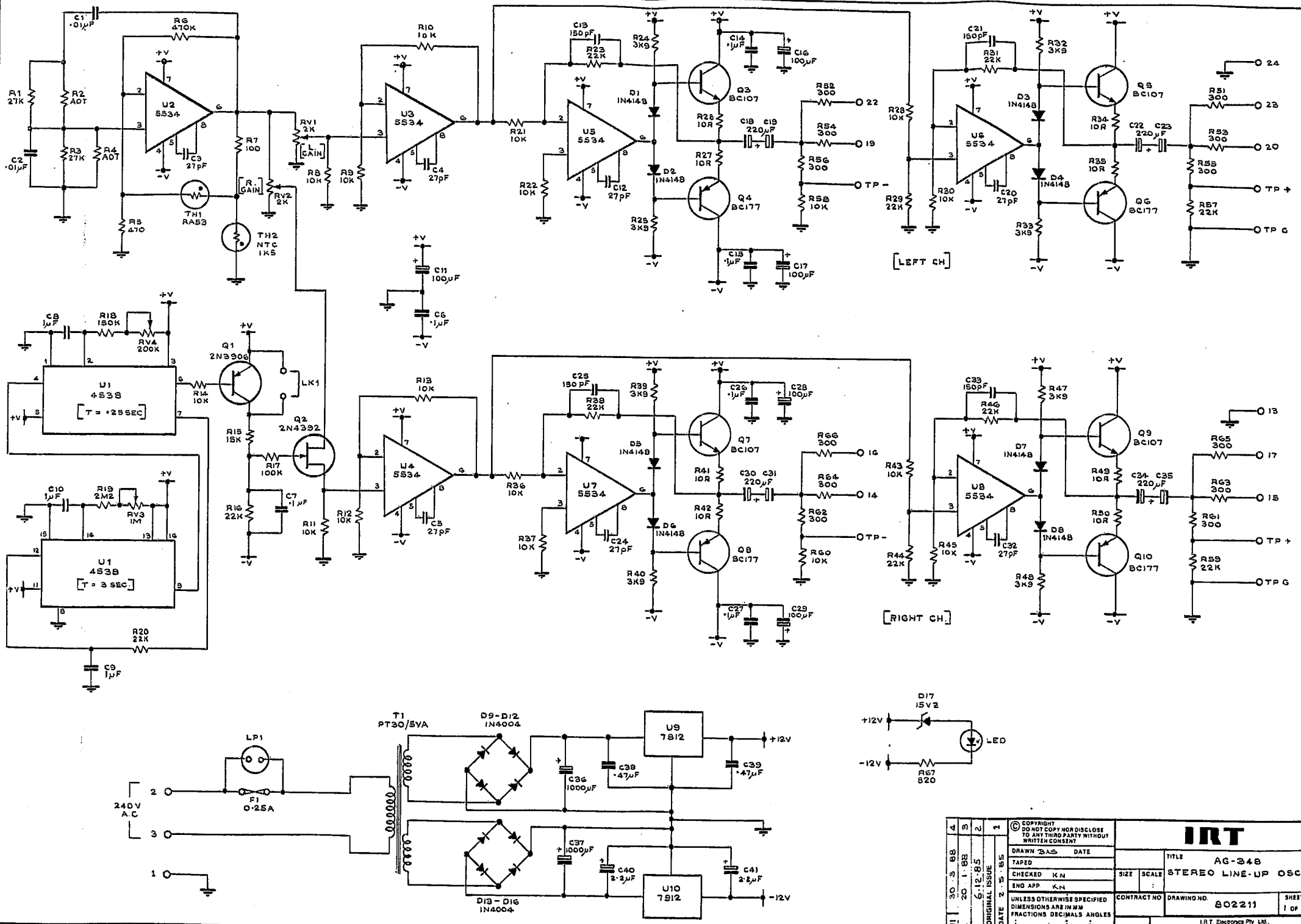
NOTE: Allow the AG-348 circuit conditions to settle before making these adjustments, a period of 15 minutes is recommended.

Output Signal Connections

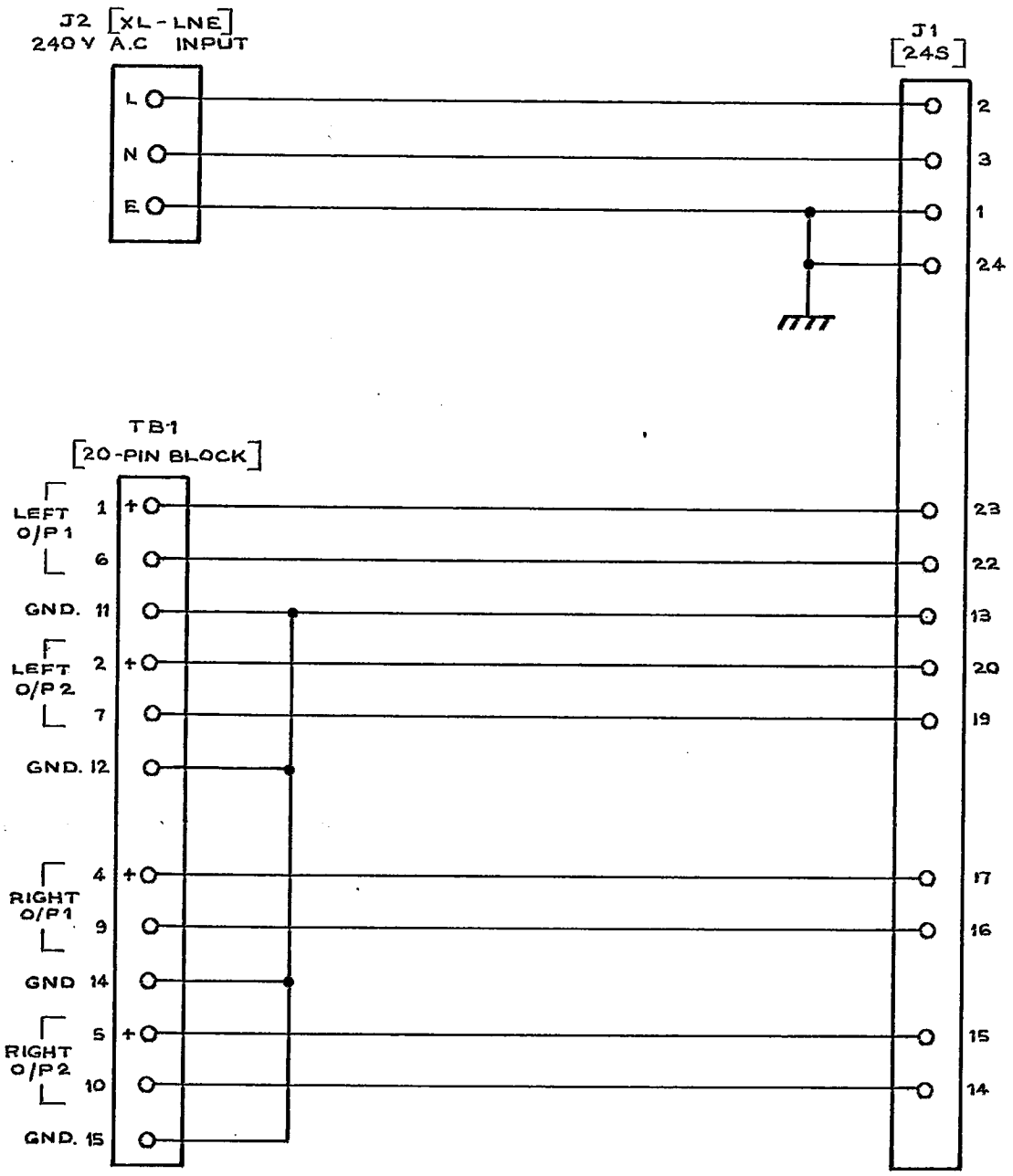
Output signal connections are via a AK-2Ø 2Ø pin solder terminal block.

Power Connections

The 24Øv AC power is connected via a XL series LINE connector.



4	3	2	1	© COPYRIGHT DO NOT COPY NOR DISCLOSE TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT	IRT				
30.3.88	20.1.88	6.12.85	ORIGINAL ISSUE	DRAWN BAS DATE	TITLE	AG-348 STEREO LINE-UP OSC.			
				TAPED					
				CHECKED KN	SIZE	SCALE			
				END APP KN					
51			DATE	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM FRACTIONS DECIMALS ANGLES	CONTRACT NO	DRAWING NO. 802211	SHEET 1 OF 1		
					I.R.T. Electronics Pty Ltd., 25 Hotham Pde., Artarmon, Australia 2064				



USE WITH

AG-348	

ORIGINAL ISSUE 1
DATE 24.5.85

DRAWN BAS DATE
TAPED
CHECKED KN
ENG. APP. KN

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MM
FRACTIONS DECIMALS ANGLES
: . : :

IRT

TITLE RB-68 REAR ASSY

SIZE SCALE :

CONTRACT NO.

DRAWING NO 802214

SHEET OF

IRT I.R.T. Electronics Pty. Ltd.,
26 Hotham Pde., Artarmon, Australia 2064