

J A M E S B . L A N S I N G S O U N D I N C .

QUALITY ASSURANCE DEPARTMENT
INSPECTION AND TEST PROCEDURES
4311

EQUIPMENT REQUIRED:

Audio Generator 30Hz. to 20KHz.

Hewlett-Packard 200CD
200AB
204C *
204D
209A
or equivalent

Grundig AG TG 4 B

Other equipment of equivalent specifications

Audio Amplifier

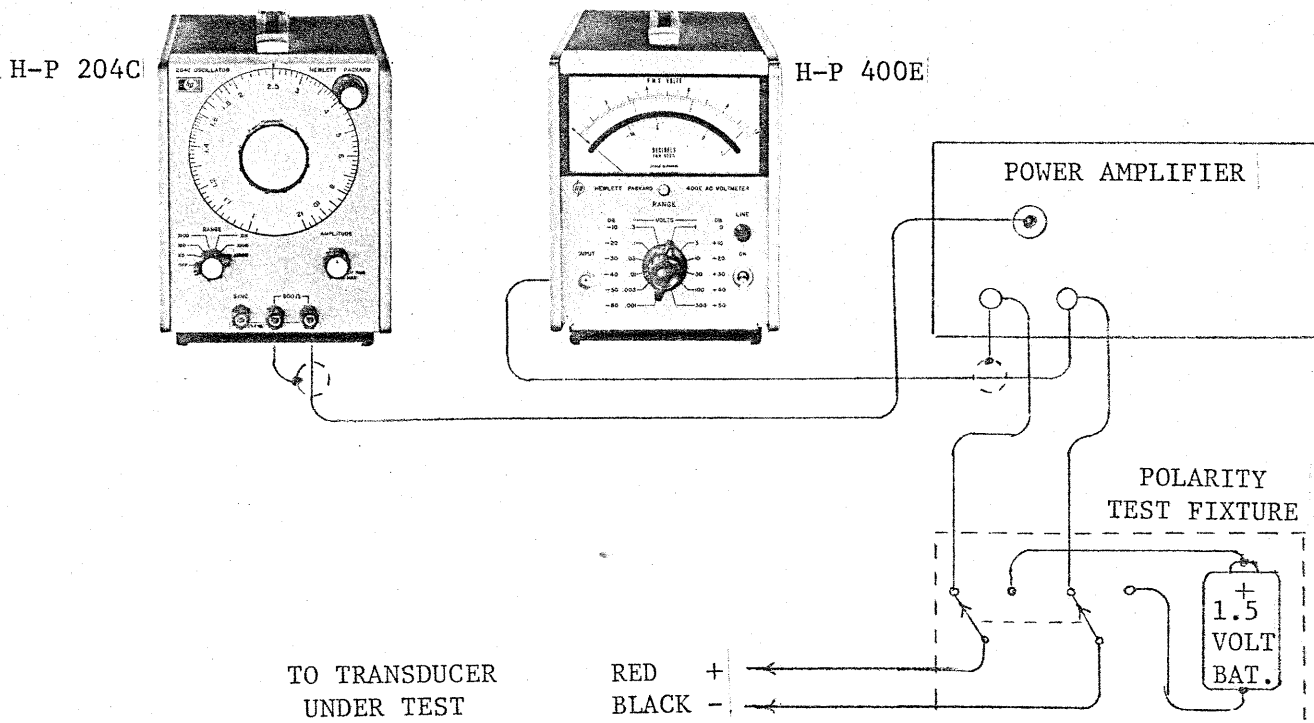
Frequency Response: 20Hz. to 20KHZ. \pm 1 dB.
Power Output: 20 Watts minimum
Nominal Impedance 8 Ohms
Total Harmonic Distortion; less than 0.5%

Audio Frequency Voltmeter 20HZ. to 20KHz., \pm 1% accuracy.

Hewlett-Packard 400D
400H
400E *
400F
3400A

Other equipment of equivalent specifications.

* Preferred instruments.



TEST PROCEDURE:

Connect the transducer terminals observing the correct polarity red to red and black to black.

Switch polarity test fixture to the 1.5 volt battery position and observe the excursion of the low frequency transducer. Forward excursion is correct.

Switch the polarity test fixture to the frequency response test position.

Adjust the audio generator frequency dial to 1 KHz.

Set the audio voltmeter to the proper range for the test voltage required in the JBL test specification.

Adjust the audio generator and or the power amplifier amplitude controls to the voltage specified. The setting of these controls is dependent on the type of equipment used. These settings are to be optimized for maximum signal to noise ratio and low distortion. Initial set up may require an oscilloscope to observe the waveform for sine wave clipping.

Sweep the frequency dial slowly from 20 Hz. to 20 KHz.

Aural response should be clean and free from spurious responses. Various transducer defects will manifest themselves by characteristic spurious sounds. It will be observed that each different model transducer system will have inherent harmonic characteristics in which the tester will become familiar. These may be easily separated from transducer or system defects after the tester has had enough practice to identify the inherent characteristics.

The most common defects are listed below. As each defect is experienced it is important that the tester investigate the specific defect to make a positive diagnosis of the symptom in his initial training. In this way he will be able to quickly identify defects by their aural characteristics.

No Response: After it has been determined that all test equipment is operating properly and no response is experienced from 20 Hz. to 20 KHz, it indicates either an open or short circuit exists. A short circuit will cause the voltmeter indication to drop significantly when the transducer terminals are connected. An open circuit may be traced by visual inspection of all internal connections. Continuity may be traced to the low frequency transducer with an ohmmeter. Continuity to the high frequency Transducer will be blocked by a capacitor and therefore would require an A.C. Test of the Dividing Network. It is unlikely that an open voice coil exists because both voice coils would have to be open simultaneously.

No Response: - Low Frequency: Check internal connections to the low frequency transducer. If these are connected properly disconnect them and measure the transducer terminals for continuity with an ohmmeter. No continuity indicates an open voice coil.

No Response: - High Frequency: Check for proper setting of the high frequency level control and repeat the diagnostic procedures as for the low frequency transducer.

Rubbing Voice Coil: Motional interference between the voice coil and the magnet assembly. In low frequency transducers this will occur at very low frequencies between 20 Hz. and 100 Hz. and characterized by a rubbing, rasping, and/or swishing sound. Depending on severity this will disappear above 100 Hz. in high frequency transducers a buzzing sound occurs at or near the crossover frequency of the dividing network.

Air noise and rattles: May occur at any frequency. Air noise is characteristic at the resonant frequency of the port tube where air velocities inside the tube become quite high under standard test conditions. Air leaks are common around network and transducer cut-outs and although sometimes not audible it is necessary to test for leaks by passing your hand across these areas and all other cabinet joints.

Air leaks will cause detuning of the port frequency and deterioration of low frequency response. Rattles may occur at any frequency. These are related to the natural resonance of the panel which is vibrating and may be easily diagnosed by applying hand pressure to various panels in the cabinet until the resonance is located.

Mid Frequency Level Control: This control is tested while making the Frequency Response Sweep Test. Set the audio generator frequency dial at 2KHz. and rotate the control knob from stop to stop. The high frequency level will be reduced when the control is rotated in a counter clockwise direction. Observe for correct alignment between the pointer and the "0" and "10" graphics on the network foilcal. Set the pointer on the number required by the test specification upon completion of this test. This control will exhibit an audible noise or scratch when rotated due to its heavy duty wire-wound construction. This is necessary and characteristic due to the high amounts of power it is required to absorb. If the control does not function or functions in reverse rotation check the network for proper hook-up. If the control has abnormal discontinuities and drop-outs, reject and replace it.

High Frequency Level Control: Set the audio generator frequency dial at 6 KHz. and repeat the test in the same manner as for the Mid Frequency Level Control.

FURNITURE INSPECTION PROCEDURES:

Veneer Joints: Inspect all veneer faces for tightness of veneer joints. Irregularities and visible gaps between flitches shall be rejected.

Surface Finish: Visually and tactilely inspect all veneer faces for smoothness and proper sanding. Surface defects, dentures, chipped veneer, and splinters shall be rejected. Defects in the veneer such as excessive burls, stump grain, discoloration by foreign substances, minerals, dies, and etc. shall be rejected.

Edge Details: Inspect the joints at each side for full and even closure. All sanding operations are to be performed with flat blocks or shoes parallel to the veneer faces. Breaking or feathering of edges is not acceptable on a JBL enclosure. Edge details shall have the appearance of a sharp knife edge. One or the other edge of the veneer shall not be blunted. Both veneer faces shall be sanded to the apex of a 45° mitre. The appearance of edge and corner details is the most stressed characteristic in JBL enclosures. These details are the characteristics which make JBL enclosures identifiable from those of other manufacture.

Painted Surfaces: All painted surfaces which do not require filling, including joints, crevices, and rough particle surfaces, shall be 100% filled with color. Filled surfaces shall be free from cracks. Surface planes that are bridged by filling material shall be parallel to one another. Furniture oils, hand prints, factory dust and etc. shall not be evident in the packaged finished product.

Logos, Nameplates, Foilcals, and other Graphic Material: Assembly fixtures shall be used to precisely locate and align all graphic material which is part of the product. Purchased materials inspection shall be performed for all graphic materials to assure color and finish per approved samples and all dimensional attributes including edges, borders, trim marks, graphics, serial numbers and etc.

Packaging: All non pre-printed identification markings such as serial numbers and dates shall be affixed to cartons with clearly readable rubber stamps. These shall be straight and parallel with the pre-printed graphics on the carton. Taping materials shall be precisely cut to the proper lengths and affixed to the carton in a straight and even manner. All shipping cartons shall be new. Re-use of old cartons or use of cartons stamped with the wrong markings and re-stamped shall not be acceptable. The proper literature and warranty cards shall be included in each carton as a necessary part of the product.



QUALITY ASSURANCE REPORT
INSP.

JAMES B. LANSING SOUND, INC.

SYSTEM/ENCLOSURE INSPECTION REPORT

WEEK ENDING _____

JBL MODEL NUMBER	TOTAL INSPECTED	TOTAL REJECTED	TOTAL PERCENT	ENCLOSURE DEFECTS									SYSTEM DEFECTS						
				SURFACE FINISH	TOUCH UP	EDGE/CORNER	GLUE LINE	BAFFLE/BACK	MITRE DETAIL	PORT TUBE	OTHER-SEE NOTES	TOTAL REJECTED	PERCENT REJECT	TRANSDUCERS	NETWORKS	INSTALLATION	OTHER-SEE NOTES	TOTAL REJECTED	PERCENT REJECT
4311	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
SUN.																			
MON.																			
TUES.																			
WED.																			
THURS.																			
FRI.																			
SAT.																			
TOTAL																			

NOTES: