

RCA SERVICE COMPANY, INC.
CAMDEN, N. J.

MI-9354^{10E62}
MI-9355

CLASSIFICATION: Photophone - Technical - Amplifiers

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SUBJECT: Phasing of Parallel MI-9354 or MI-9355 Amplifiers

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MI-9354 or MI-9355 amplifiers operating in parallel should be properly phased or obtain normal power output. The procedures outlined below should be used to determine if the phasing is correct.

PEC NOISE TEST

After the AC power to the entire sound system has been applied, and all units of the system in operation, raise the fader or volume control level so that the photocell "hiss" can be plainly heard in the monitor speaker. If the photocell noise is not heard, and all other units are operating normally, reverse either the secondary leads of the input transformer or the anode leads to the tube sockets of the output transformer on one of the amplifiers. When the photocell noise is plainly heard, the amplifiers are in phase. When the PEC noise can barely be heard or not heard at all, the amplifiers are out of phase, assuming of course, that the system is otherwise in normal operating condition.

OUTPUT METER TEST

Thread a 300 cycle loop in one of the soundheads, connect a DB meter to the output of *one* of the amplifiers that has been loaded with a resistance load equivalent to the output impedance of the output transformer. Raise the fader or volume control one step at a time to determine the point of overload. Repeat the same procedure with the other amplifier. Now measure the power output with both power amplifiers connected in parallel. The power output, when amplifiers are in phase, should be twice that obtained from one amplifier or approximately 3 DB more on the DB meter, assuming that the proper DB meter *corrections* have been applied for both readings. If the power output with two amplifiers is not twice that obtained from one amplifier, check your input and output connections and if necessary reverse one input transformer secondary leads, or output transformer anode connections as explained under PEC NOISE TEST.

Caution: Cutting off the AC supply to one of the power amplifiers while they are connected in parallel will give an erroneous DB reading because the tube loading from the primary of the output transformer is removed. This test should not be used for measuring power output of two amplifiers operating in parallel.

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CHECKING OPERATION OF MI-9354 AMPLIFIERS IN PARALLEL

(This test does not apply to MI-9355 power amplifiers.)

Checking the operation of two MI-9354 amplifiers in parallel can be made by connecting a DB meter to the output of *both* MI-9354 amplifiers that have been properly loaded with a suitable resistor load, using the following procedure.

Thread a 300 cycle loop in one of the soundheads or use a B.F.O., then raise fader to obtain a fairly good reading on the DB meter. Remove the second stage 1620 Radiotron from the socket of one of the MI-9354 amplifiers and observe the DB meter reading. The meter should drop exactly 3 DB. After replacing the 1620 Radiotron in its socket repeat the same procedure with the second amplifier and note the drop in DB meter reading. The meter should drop exactly 3 DB.

To obtain satisfactory operation from two MI-9354 amplifiers operating in parallel, both amplifiers should have the same power gain. This can be determined by feeding the amplifiers a constant frequency from a 300 cycle loop or a B.F.O. and measuring the level at various points in both amplifiers. The simplest way of doing this is to connect the amplifier output of the Triatic Tester to a DB meter and using the input probe, check for readings at the same points in both amplifiers. If the readings are different, check your input connections, tubes and other components. If the amplifiers are not phased properly, change input or output transformer connections as previously explained.

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