VARIABLE RELUCTANCE CARTRIDGE RPX-050 WITH REPLACEABLE DUAL STYLUS ASSEMBLY FOR STANDARD GROOVE AND MICROGROOVE RECORDINGS

SPECIFICATIONS

Resistance (D-C).....340 ohms
Inductance.....520 millihenries
Output (average @ 1000 cycles):
Columbia 10003M, Standard Groove Record.....10 millivolts
Columbia RD90, Microgroove Record.....10 millivolts
Stylus Pressure.....6 to 8 grams

GENERAL

The RPX-050 cartridge has been designed for use in two or three speed record player equipment and features a replaceable unit dual stylus assembly. Two selector knobs are supplied—the one used will depend on the knob clearance necessary with a particular tone arm installation. The selector knob control permits instant setting of the dual stylus assembly, to bring the required type stylus into operating position for reproduction of a corresponding type of record. The knob index MG (microgroove) or STD (Standard Groove) indicates the position of each respective stylus. To operate the knob control, the knob is first depressed and then turned to the position where the knob index corresponding to the type of record to be played faces the end of the tone arm, indicating that the proper stylus is in place.

The accompanying illustration of Figure 2, Cartridge Outline, shows a cut-away view and an outline of cartridge (top view) showing over-all and mounting dimensions.

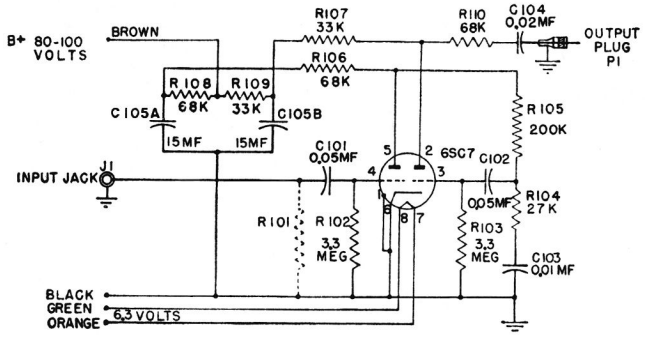

FIG. 1 PREAMPLIFIER CIRCUIT

AMPLIFIER DESIGN

For optimum performance, the amplifier should be designed for full output with 10 millivolt input. Circuit equalization must be employed to compensate for recording characteristics of the various record manufacturers to obtain the desired frequency response. Actual design will vary according to the requirements of the individual installation, but for applications involving sound system amplifiers and radio receivers, the General Electric Cat. No. SPX-001 or UPX-003 Phono Preamplifier is recommended to provide the necessary preamplification of the reproducer's low level output and the previously mentioned circuit equalization. The equalization is provided by R105, R104, and C103 shown in the accompanying schematic diagram of Figure 1. The low frequency cross-over of this combination is approximately 500 cycles, the average of modern recordings. Total equalization is 15 db. In the receiver or sound apparatus to be used with these units, *previously employed circuit compensation for phonograph cartridge frequency response must be removed.*

NOTE: R101 may be selected in the range of 5,000 to 50,000 ohms and added as shown in the schematic diagram. The higher values provide increased high frequency response but the surface noise will also be increased. For maximum high frequency response, R101 may be omitted entirely. The recommended value for general application is 15,000 ohms.

TONE ARM REQUIREMENTS

Choice of the tone arm should be carefully considered. The mass (weight) of the arm should be low, and the lateral and vertical bearings of the low friction type. If the tone arm has excessive mass and friction in its bearings, the record groove will be overloaded, causing immediate or early breakdown of the record surface material and consequent destruction of the recording. In general, for the reproduction of narrow groove records the requirements are more strict than those required by standard groove recordings. The force required to move the pickup and arm in a lateral direction should not exceed 2 grams. The difference in stylus pressure measured when moving the arm very slowly upward should not exceed the pressure measured moving the arm downward by more than 2 grams. When making measurements, the stylus must rest on the weight measuring device as the device is moved—first upward approximately 1/8 inch, and then downward approximately 1/8 inch.

Additional consideration of equipment design for narrow groove record reproduction is required in the choice of the phonograph motor and sound amplifier. Due to the lower output of the pickup cartridge playing narrow groove recordings (caused by less groove displacement), the hum-to-signal ratio is increased. For minimum hum, the four-pole phonograph motor is preferred to the two-pole type. In addition, adequate filtering of the sound system power supply is necessary to keep the hum-to-signal ratio at a minimum.

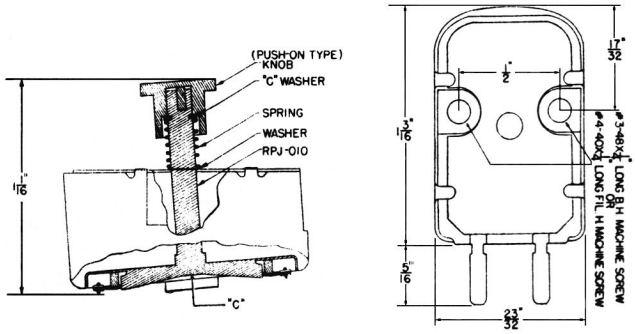

FIG. 2 CARTRIDGE OUTLINE

MOUNTING

The Outline Drawing of Figure 2 shows the pickup cartridge dimensions and screw mounting centers. Four screws are supplied so that mounting may be done either by the two 3-48 x 1/4-inch Round-Head or the two 4-40 x 1/4-inch Fillister-Head machine screws. The cartridge should be mounted with its top surface parallel to the top of the pickup arm in order that the stylus will contact the record at the proper angle. A 1/16-inch hole must be drilled through the top of the tone arm through which the styli assembly shaft will pass in mounting. This hole must be accurately placed and is accomplished by first removing the cartridge styli assembly as described in Styli Assembly Removal and Replacement, and mounting the cartridge upon the tone arm mounting bosses with the screws provided. A scratch awl or marking tool, slightly smaller than the styli assembly shaft, is used to mark the hole location through the cartridge and upon the tone arm. Remove cartridge and then drill hole through tone arm. *Do not attempt to drill through both cartridge and tone arm.* The styli assembly is finally replaced into the cartridge and cartridge mounted to tone arm. After the cartridge has been mounted, check the stylus pressure making adjustment to the specified stylus pressure given in the cartridge specifications.

STYLI ASSEMBLY REMOVAL AND REPLACEMENT

The illustration of Cartridge Outline in the cut-away view shows the styli assembly installed with flat washer, shaft spring, retaining washer, and control knob in place.

To remove assembly from cartridge, pull off the knob and compress spring slightly to release tension upon retaining washer. Retaining washer, spring, and flat washer may then be picked off shaft and styli assembly removed from cartridge.

CAUTION: *Do not remove the special grease used on the styli assembly shaft.*

Replacement is done similarly; the spring compressed a bit, retaining washer slipped upon the shaft groove, and knob replaced. Note that the knob key and styli assembly shaft slot are off-center so that knob can only fit on in one position. *Check key and slot to fit. Do not force knob on.* Press knob firmly on shaft, making certain first that alignment is correct. Apply pressure only at point "C," to prevent damage to styli parts.

SERVICE

To insure optimum performance from the RPX-050 cartridge, its styli, magnetic pole pieces and gaps should be cleaned periodically of foreign particles accumulated from the record surfaces. A soft bristle brush, Cat. No. RQB-001 or an equivalent, should be used to clean these parts. These parts are more readily accessible for cleaning if the styli assembly control knob is depressed and rotated to expose the styli, poles, gaps, and the styli guide and its recess. The gap clearance between stylus and each of its pole pieces has been adjusted to be not less than .010 inch. To obtain optimum performance from your cartridge, be careful not to distort parts of the assembly which would disturb this adjustment.

For parts replacement, the following items are listed with their respective catalog number.

RKP-009 SERVICE KIT—Contains knobs, "C" washer, spring, and flat washer
RPJ-010 REPLACEABLE STYLI ASSEMBLY—With .003 and .001 inch sapphire styli

GE VARIABLE RELUCTANCE PICK-UPS RPX 040, 041, 050

LEAD CONNECTION — Defective cartridges returned because of an open in the pick-up coil indicates that this trouble is caused in most cases by the practice of soldering the phono leads directly to the cartridge terminals. This application of heat may thus burn the fine wire to the pick-up coil, causing an open. Push-on terminal lugs are furnished with each replacement cartridge and the leads should be soldered to these lugs instead of to the cartridge terminals.